Hitchcock's Machine Tool Blue Book

EPTEMBER, 1931 TWENTY-SIXTH YEAR

Quick-As-Wink Air Valves

Made in sizes 1/8 to 3/4 inches inclusive, with male, female pipe threads or hose shanks.

Guaranteed for a million operations. No handles or stems to lose, leak, break or bend.

Fastest valve on the market —*and they stay tight.*

We also build Quick-Acting Hose Couplings, with and without valve

Send for Bulletin

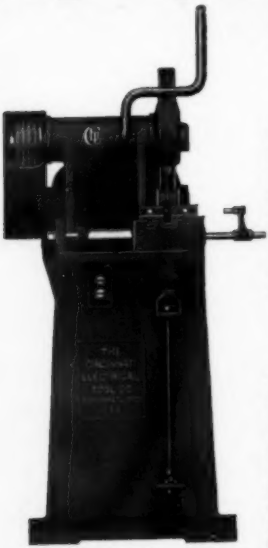
C. B. HUNT & SON,
647 McKinley Ave., SALEM, OHIO

BLISHED AT 508 So. DEARBORN ST. CHICAGO

The Cincinnati

TRADE MARK

High Speed Cut-off Machine



Unexcelled—

for cutting your steel alloys, brass, copper, aluminum, fibrous materials, etc. of any size or shape up to 2¼" inclusive. This machine makes cuts, straight or angle, easily and quickly up to 45°, using the same vise for the various cuts.

Interesting Figures

A time chart showing the remarkable short time this machine takes to cut the various steel alloys and metals is yours on request. This chart also shows the large number of cuts the cutting wheel makes in the various metals and alloys. Send for these interesting figures and compare them with your own.

BUILDERS OF:

Ball Bearing
Electric Drills
Screw Drivers
Nut Setters
Tappers
Valve Grinders
Tool Post Grinders
Floor Buffers
Bench and
Floor Grinders

Also send for Bulletin giving complete description of this machine

THE CINCINNATI ELECTRICAL TOOL CO.

2700 Madison Road, Cincinnati, Ohio

Hitchcock's
Machine Tool Blue Book

Selected Circulation 25,500 Monthly

SEPTEMBER, 1931 TWENTY-SIXTH YEAR

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The "Hitchcock plan" affords by far the widest and best coverage of the desirable metal-working plants per dollar of cost.

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Write for our Circulation Analysis and "Blue Book" rates

Published By

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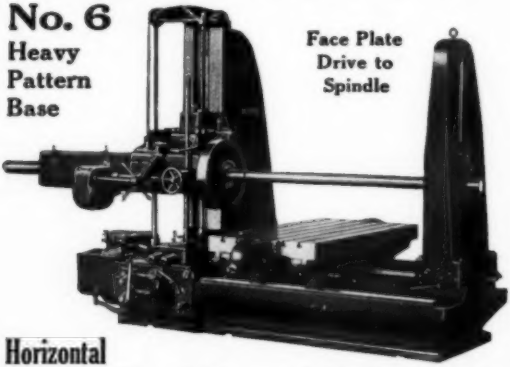
508 S. Dearborn St., Chicago, Ill.

Consult the Classified Finding Index for your requirements

The New Improved DEFIANCE

No. 6
Heavy Pattern Base



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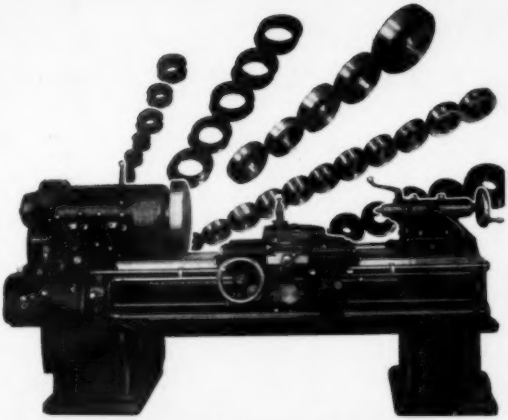
Boring, Milling, Drilling and Tapping Machine

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines. Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works
Defiance, Ohio

Designers and Builders of Precision-Production Machine Tools and Special Woodworking Machinery



55 More Reasons Why You Should Consider Monarch Model "C" Lathes

THE 55 anti-friction bearings used in Monarch Model "C" Tool Room Lathes are just so many additional reasons why these lathes give you more value for your lathe dollar. These 55 anti-friction bearings, together with many other exclusive Monarch features, result in greater accuracy, reduced power consumption, conservation of lubricant, prolonged life of machine, lowered maintenance cost. Of paramount importance is the extreme accuracy that results from this extensive use of anti-friction bearings. You can turn work to a roundness of .00005" on a Monarch Timkenized Tool Room Lathe. We will prove it to you by actual performance.

Bulletin 143 describes the 13", 16", 18" and 20" Model "C" Lathes. Write for a copy.

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SIDNEY, OHIO, U. S. A.

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Helical Gears - Timken Bearings

SMOOTHER..QUIETER..MORE POWERFUL

Threading 1200 pieces per Hour

These brass wing screws shown are being threaded on our

Standard High Speed Tapping Machine

Let us show you what can be done on your work

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A Single Spindle Footburt Sipp Sensitive Drill

Made in three sizes of single and multiple spindle models

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

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24 different shapes—blank stock varying from ½" to 10" wide, and from .025" to .062" thick—and a material with peculiarities possessed by no other known metal! These were the problems involved in forming the remarkable duralumin metal girders for the framework of the AKRON.

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A single machine was furnished. This one McKinney machine not only formed every shape required, ***but handled the work at a fraction of the cost that would have been required by any other method even could it have met the requirements of the metal.***

McKinney roll-forming has solved similar problems for hundreds of others.

The McKinney Tool & Mfg. Co.

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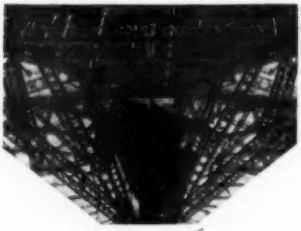

Write for further information.

Interior view of ship showing girders from which framework is constructed.

BETTER BUSINESS AHEAD,——— ———IT'S TIME TO GET READY

COMPETITION WILL BE KEENER

LOOK 'EM OVER

It will pay to look over your equipment; chances are you've got machines 8 or 10 years old that are out of date.

OLD MACHINES, OLD METHODS, OLD RESULTS WONT DO

Do it Faster
Do it Better
Do it Cheaper

Avey

CAN HELP YOU

There are a lot of new things in drilling. There are a lot of ways that two holes can be drilled at the former cost of one.

Let us send you our Bulletin "IS YOUR DRILLING DEPARTMENT NEGLECTED" showing latest developments in Drilling Machines, Automatics, Motor Units, Tappers.

TELL US YOUR PROBLEM. ASK FOR INFORMATION.

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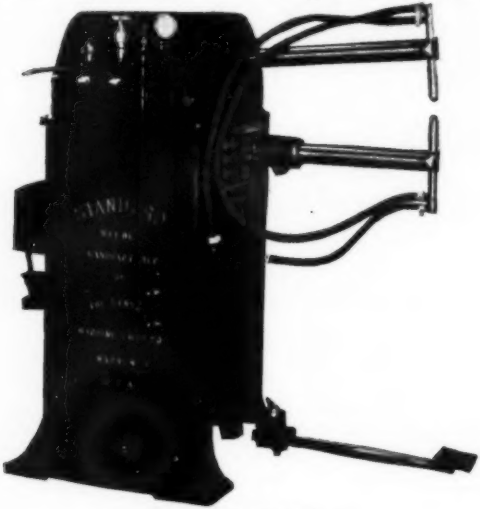
"STANDARD" Spot Welder

Type A. M. B.

Air Operated Fully Automatic



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Any number of strokes per minute desired. 20 to 40 K. V. A. capacity.

Send samples or blue prints for estimates on special equipment. We can save you money.

Manufactured by

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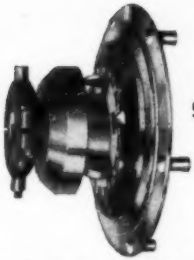

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has these features:

Easy Engagement
Instant Release
Dragfree Idling
Abundance of Power

You may find them in another clutch. But not in the matchless blend of consistency and dependability that is found in the patent Conway Clutch. Users who have tried them all tell us the Conway is a combination that can't be equalled.

"The last word in friction clutches" has centripetal action and long wearing parts, all enclosed and balanced. A touch on the lever bar controls every function.

Send the facts of your requirements to our engineers for estimates. No obligation.

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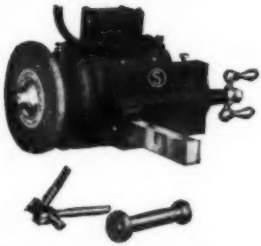
"The Conway Disc is a splendid Clutch"

WORTHY OF YOUR HIRE



Tool Post or Center Grinders

For internal grinding and grinding of centers, cutters, dies, reamers, etc., in lathe, milling machine, shaper or planer. Sizes 6" and 8" wheels. ¼-½ H. P.

Drills—Grinders—Buffers—Polishers

Combination Grinders and Buffers

G. E. Motors and SKF ball bearings. High grade nickel steel shaft. Made in four sizes. ½, 1, 2, and 3 H. P.

The 2 and 3 H. P. are fitted with Push Button Control. Also made in Bench Type.

Catalog on request

The Standard Electrical Tool Co.

1952 West 8th St., Cincinnati, Ohio

Standardize with Standard Tools

BELOIT
ALLIGATOR SHEARS

Proof is in Performance

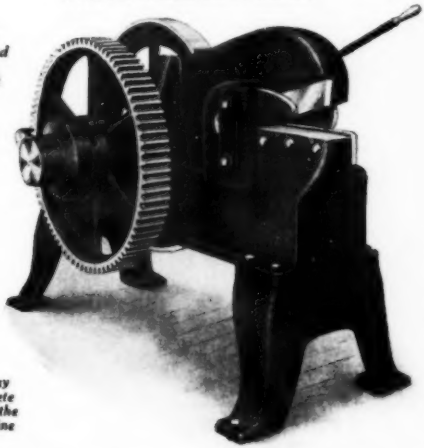
THE acid test of any machine is its ability to stand up under the day-by-day demands of shop routine. That BELOIT Alligator Shears meet this exacting test is evidenced by the following:

"Regarding the No. 46 which we have in use, we wish to express our satisfaction with its operation. It has never given us any trouble whatsoever and handles such lining as 6x⅜" heavy duty with ease."*

"I wish to inform you that the No. 46 has given us entire satisfaction and all the time it has been in operation (since 1921), we have not spent any money on repairs which speaks highly for this machine."*

Write for Complete Information

**Name furnished upon request*



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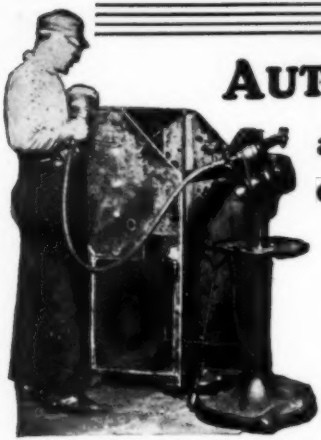
PUNCHES — SHEARS — BENDING ROLLS

KME



AUTOMATIC

adjustment of machine to work

PERFECT BALANCE of motor and shaft is achieved in the Kellerflex by mounting the motor on an adjustable sliding bracket in a universal swivel yoke. The machine responds INSTANTLY to the slightest movement of the handpiece. It follows the work—relieves strain on the cable—avoids sharp bends—reduces shaft friction.

Remember—the Kellerflex is a quality, ball-bearing equipped machine throughout. The motor is full-sized. A wide range of speeds permits use of the right tool at its correct speed with greatest efficiency. Practical experience with actual working conditions is reflected in every detail of its design and workmanship.

Complete stock of Kellerflex Machines, rotary files, grinding wheels and polishers at Chicago and Brooklyn.

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KELLERFLEX

HAMMOND

GRINDERS & POLISHERS

Hammond Machinery Builders
KALAMAZOO, MICHIGAN

Taylor & Fenn Belt Driven

No. 12 Spring Press

UNIFORM BLOW SPRING PRESSES

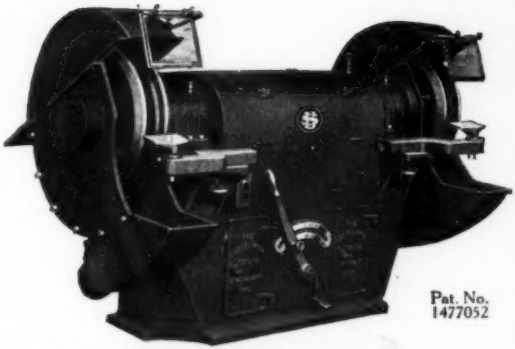
Are made in three sizes, with either single or double action

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of 3¼ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

The Taylor & Fenn Co.

Hartford, Conn., U. S. A.



Pat. No. 1477052

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New Low Costs

for production and operating are more imperative than ever. To get *lowest* cost in grinding, the *U. S. Variable Speed Grinder* is essential. You get highest efficiency in power transmission with the Gibbs Drive of GRAPHITIZED MICARTA—a patented feature found in no other grinder. You use the wheels clear down to the flanges—this grinder maintains a constant speed of approximately 9,000 surface feet per minute throughout the life of the wheels. Low replacement costs of grinding wheels and drive, six heavy duty SKF Ball Bearings and many other superior features make this the most economical grinder built today.

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—just off the press, shows many new tools, machines and improved features. It's free. Ask your distributor or write us today for Catalog No. 33.

The United States Electrical Tool Co.

2461 W. Sixth St., Dept. D. Cincinnati, Ohio

Canadian Division—MAPLE LEAF ELECTRIC TOOLS, Ltd.—Toronto

"SUPERIOR" Two-Spindle Hand Millers

One Plant Alone Uses Fifty— WHY?

Because they will handle two operations simultaneously on a great variety of work. Spindles are independently adjustable vertically.

Slides move freely without cramping, since all guiding surfaces are long in proportion to their width. All sliding members are fitted with adjustable gibs, and can be securely clamped without disturbing adjustment.

Especially adapted to cut step-cut piston rings, as it will handle both sides at once; also for splitting crankshafts and connecting rod bearings, both sides of which are also handled at once. Many "Superiors" are at work on such operations.

Furnished for direct drive from main shaft (friction countershaft built integral with machine) or for motor drive.

Descriptive Literature Gladly Sent on Request

We are also Designers and Manufacturers of Special Machinery, Tools, Dies, etc., as well as of Experimental and Model Work.

Superior Machine & Engineering Co.

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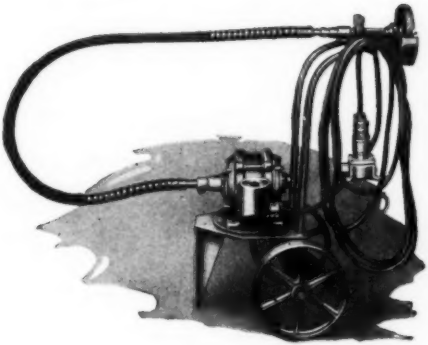
A Portable GRINDER

which will withstand *continuous* HARD GRINDING DUTY!



1 H.P., 3 Phase, 220 or 440 volts. 3600 R.P.M. at 60 cycle. 40° C. Rise Constant Duty. Nine motor leads are brought out in switch box for ready connection to either 220 or 440 volts. Strong Flexible Shaft. Light Metallic Handle equipped with Standard Ball Bearings. Equipped with 8"x1" grinding wheel. Diameter of spindle at wheel, ⅝". Net weight of Grinder, 155 lbs. Shipping weight, 200 lbs. Can be furnished in single phase 110 or 220 volts A.C. and 110 or 220 volts D.C.

A Sales Representation Is Open in a Few Localities

STOODY COMPANY

MANUFACTURERS

WHITTIER, CALIFORNIA

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the WELLS metal band saw

Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

features:

Self contained and portable if desired—rapid cutting with extreme accuracy—long life blades, low blade expense. A wide range of usefulness—economical operation.

The WELLS SAW cuts soft and hard, ferrous and non-ferrous metals—thick and thin sections—pipe, **tubing,** strips, etc.

No change of blade or speed—cuts high carbon steel then soft brass rapidly and accurately.

Hundreds of duplicate pieces cut with a variation of less than .004".

Saves stock—width of cut less than 3/64"—blade .025" thick rigidly supported in six ball bearings.

Durable construction for hard service—strength without excess weight—ball bearing.

A Saw for Production, Maintenance and General Service

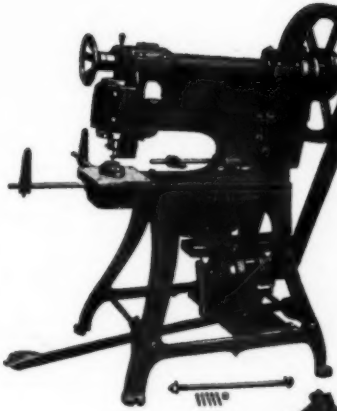
We wish you to have descriptive literature—your name and address please—today? Saws will be placed on trial.

Metal Saw Division

WELLS MANUFACTURING CORP.

Three Rivers, Michigan

Exclusive territory being allotted—representatives and dealers interested, please write.



No. 20

For duplicating work by the use of Horse Shoe Gauges, Templet Sheets can be made to punch sheets with accuracy and speed not obtainable with any other method of punching. Capacity 1/4" hole in 1/4" iron.

No. 19

Ball Bearing, accurately designed square slide built like a Punch Press for irregular shape dies. Easily operated balanced lever can be moved to the job with ease, saves time, one man machine, capacity 1/4" in 1/4" iron.

Excelsior Tool & Machine Co.

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WARDWELL

Combination Grinder

—for—

BANDS HACKS AND CIRCULAR SAWS

MODEL E
Salvages all Cold, Milling, Slitting and Screw Slotting Saws

And all Wood Cutting Saws

One years saw purchases can be made to last from six to eight years.

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Manufacturers of the largest line of Saw Filers made in U. S. A.

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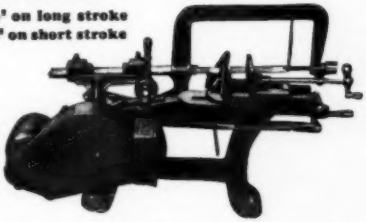
MARVEL

Draw-Cut Hack Saw No. 2

Adjustable Stroke

CAPACITY { 6"x6" on long stroke
8"x8" on short stroke

With Swivel Vise



A Complete Motor Driven Hack Saw at a very attractive price. It's a Strong, Durable, Dependable Saw, and can be furnished either with motor for power circuit for stationary use or with motor for lighting circuit so it can run from any light socket in your shop. Motor is connected with driving shaft by silent chain, sprockets, and intermediate cut gears enclosed in cast iron housing and guard and run in oil. Write us. Let us know the current of your power circuit, or lighting circuit. Get the full details from us of this Complete Motor Driven Saw. Can also be furnished Belt Driven.

ASK ABOUT MARVEL
High-Speed-Edge Hack Saw Blades

ARMSTRONG - BLUM MANUFACTURING CO.

341 N. Francisco Ave., CHICAGO, ILL.

Norgren Sight Feed Automatic Air Line Lubricator

APPROVED!

Eight Leading Trade Journals Have Given The Norgren Lubricator Editorial Presentation.

More Than Fifty Nationally Known Manufacturers Are Using Norgren Lubricators As Standard Equipment Or Plant Equipment.

The **NORGREN** Sight Feed Automatic Air Line Lubricator provides a simple means of injecting lubricant into the air stream of pneumatically operated tools. Adjustable to any demand. Entirely automatic. No working parts.

Ten days FREE TRIAL to any firm having satisfactory rating.

Norgren Industrial Hose Couplings
For Air, Water, Grease

SIMPLE—NEAT—EFFECTIVE

Positively will stand the bursting pressure of the hose. Concentric grip and seal prevents injury to the hose and protects hose end from destructive action of grease, oil, water.

Can be removed and re-applied whenever necessary.

Used as original equipment by the following nationally known machine builders:

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. . . Consider Your Costs and Profits

PROTECT YOUR BUSINESS *with* STACKBINS

WHEN you use STACKBINS ..... parts are always in view ..... production is speeded up .....workers become more efficient ..... there is a saving of space, time and costs.

The method of handling materials and parts is a very important factor in increased production and lower factory costs ..... you can improve your present system 100% ..... and save money—with STACKBINS.

Stackbins Can Be Used

1. On the Bench.
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Made in Numerous Standard Sizes

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Kindly send descriptive circular and quote prices on Stackbin equipment.

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REDUCE ASSEMBLY COSTS

MACHINE SCREWS
MACHINE SCREW NUTS
WOOD SCREWS
LAG SCREWS
CAP SCREWS
PIPE PLUGS

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are just a few of the many special screw products which we furnish discriminating users.

It is possible that you are using special screw parts that can be produced by our method at a great saving to you.

Send us Blue Prints or Samples, together with quantities required, for an estimate.

Remember that in Screws—
there is a difference!

All inquiries receive prompt, intelligent attention

ELCO TOOL & SCREW CORPORATION

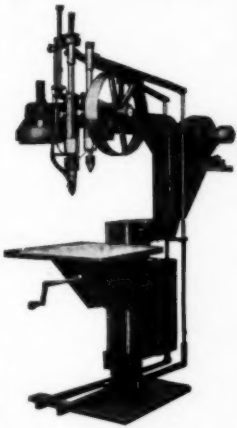
1808 Broadway, ROCKFORD, ILLINOIS

"It Pays to Use Good Screws"

TRIM YOUR COSTS

with the aid of

Reynolds Automatic MAGAZINE FED Screw Driving Machine



MADE IN MANY STYLES AND SIZES, to fit your particular needs, the Reynolds will drive your screws more uniformly and at less cost than any other method.

Saves One Firm $2,000 a Year!

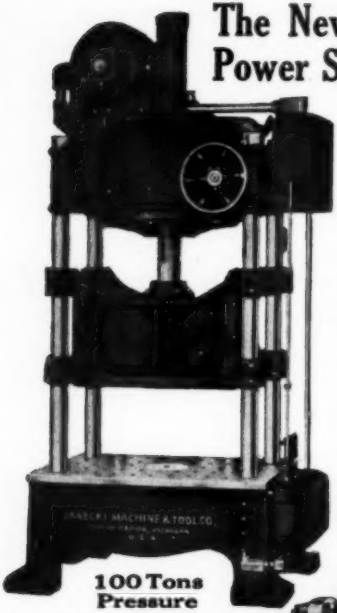
HUNDREDS of concerns, the country over, having from one to thirty REYNOLDS Automatics in use, found that they were able to reduce their screw driving costs from 65 to 85%. The Magazine Feed enables one man to do the work five men using hand methods can accomplish. Every screw is firmly imbedded and driven so accurately that many users have been able to reduce the number and sizes of screws used.

Drop us a line, giving dimensions over all of your work, the length and gauge of screws used, and we'll submit facts and figures showing how the REYNOLDS can reduce your costs.

The Reynolds Machine Company
Dept. H. H. Massillon, Ohio

"THE MODERN WAY TO DRIVE SCREWS"

The New Type CC Power Screw Press



ONE Man Handles ALL Dies

if you use this new, time and labor saving machine. One man can do more, better and speedier work than two men on other types. Rigid, powerful, delivers 100 tons pressure. No wedging—no prying—no tendency to nick or gouge dies. Always in perfect alignment. Push button switch enables operator to start, stop or reverse ram without taking his eyes off his work.

Write for Details

100 Tons Pressure

Also Hand Screw Presses 25 and 80 Ton Pressures

Surface Grinder

A substantially built machine that is powerful, rigid and accurate. Equipped with graduated dials and non-vibrating wheel.

Prices and Details on Inquiry

JARECKI MACHINE AND TOOL CO.

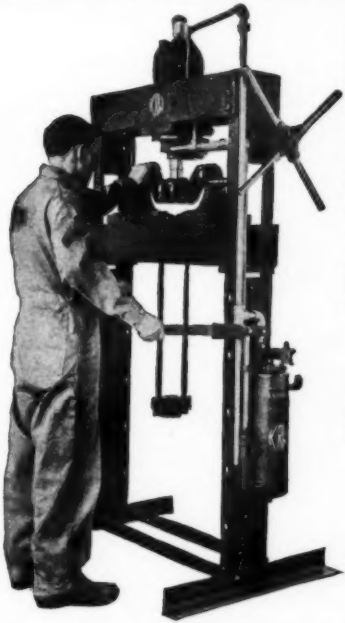
Department A

GRAND RAPIDS, MICHIGAN

KRW Hydraulic and Sensitive ARBOR PRESS

NEW 1931 MODEL

Many New Improvements for Perfection of Operation and Convenience Gives You All Around Efficiency at Low Cost



A new double acting piston fills cylinder with oil as the ram is brought down by means of the hand wheel of unique design — sliding handles which pull out to the ends greatly increase the leverage.

Side members slotted to permit long bars to pass thru.

35 tons Capacity

Direct to You

$125.00

F. O. B. Factory

Complete with all attachments as shown

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To Manufacturer or Foundry Looking for New Lines:

An opportunity is offered to take over metal manufacturing business with established line of products showing good profit.

Going business complete with orders on hand, including Machinery, Equipment, Special Tools, Patterns, Stock of Finished Goods, etc., which can be moved to own plant, or operated in present location. Only Fifteen Thousand Dollars needed.

Present owner must sacrifice business because of other interests that require all his attention.

Product on market since 1924, and has highest reputation in its field. Sold to mill supply and hardware trade. No price competition. Distribution established in United States and Canada. Average annual sales for past three years $45,000.00. Manufacturer with own distribution in field could quickly double this amount.

Here is a chance to increase volume and help get profits back that reduced business has cut down or perhaps wiped out.

For Particulars

Address P. O. Box 940
Providence, R. I.

Bay State Handy Vise

You'll Find It Mighty Handy!—

Does away with Clumsy Clamps and Parallels !

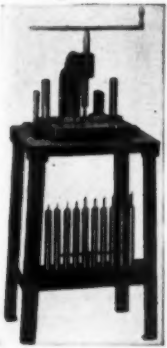
This is the Vise you've been looking for—light but sturdy, handling easily either fair sized or small work on your miscellaneous tapping, drilling and grinding jobs. A real combination tool—vise, angle iron, parallel V-block, clamps—all in one. Made of steel throughout, hardened and ground accurately, parallel and at right angles. Saves set-up time—does away with all clumsy tools such as parallels, clamps, etc. Send for illustrated, descriptive circular today.

VISE PRICES:

Capacity 6" opening Weight 14 lbs. . . $30.

Capacity 4" opening Weight 7 lbs. . . . $25.

Bay State Hand Tapper



Takes the "trickiness" out of hand tapping

The Bay State Tapper requires no setting up whatsoever—its operation is the essence of simplicity. You don't even have to change taps, the rack holds spindles enough—all set to operate—with various size taps for every job.

Just place work on table against stop pin, pick spindle with size tap wanted and insert it into bracket sleeve and turn the crank—easy isn't it?

You can't start wrong nor get the tap out of alignment after starting. Eliminates spoilage of work and tap breakage. Discard the obsolete tap wrench—use the Bay State Tapper instead and save time and money.

Write for Complete Information

Bay State Tool & Machine Company

414 Albany St., Springfield, Mass.

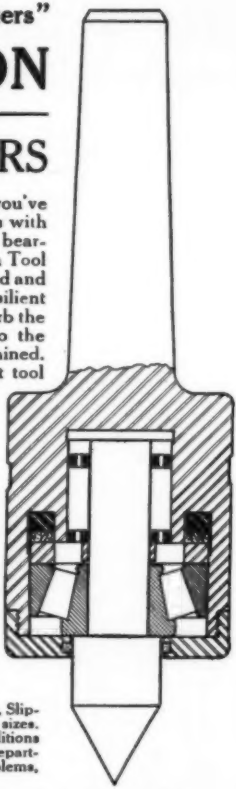
"The Center of Centers"

PRECISION

Friction-Less

LIVE CENTERS

HERE is the Live Center you've been looking for! Turns with the work, runs on roller bearings (in oil), and is a Precision Tool with all bearing surfaces ground and hardened. Equipped with resilient pads which automatically absorb the shocks and expansion due to the heating of piece being machined. Ready for use on the smallest tool room lathe or the largest railroad shop equipment.



Cost-Saving Features

NOTE the simple construction as shown in the cross-sectional view. Large taper thrust and annualar roller bearings, mounted with extreme care, insure accuracy and long life under most severe conditions. Front bearing cone seats on resilient pad which absorbs shocks—eliminating tool breakage and spoilage of work.

Various Types and Sizes

Furnished in Taper Shank, Slip-Over, Slip-In and Spindle Types, and in many sizes. Special Centers to meet unusual conditions can be furnished. Our Engineering Department will help you solve your problems, without obligation.

Write for Illustrated Catalog giving Complete Details

Precision Gauge & Tool Co.

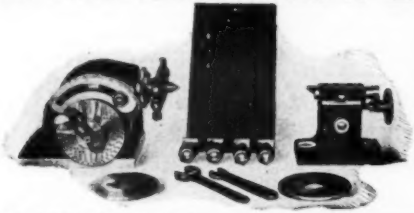
(Division of The J. C. Glenzer Co.)

6463 Epworth Blvd., Detroit, Mich.

STEVENS DIVIDING HEADS

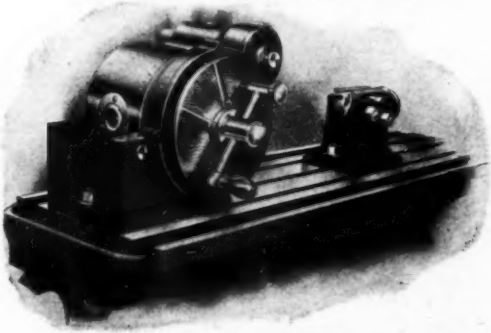
(FORMERLY GARVIN)

PLAIN TYPE—Made in Two Sizes—10" and 11"



DOUBLE GEARED-BARREL TYPE

Made in Three Sizes—10", 12" and 14"



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Manufacturers Of

Double end horizontal drills, milling machines and attachments, milling machine vises, dividing heads, index centers, single and multiple spindle, hand screw machines, cutter grinders, screw slotters, hand lathes, collet chucks, oval chucks, rotary tables, hex square milling fixtures, air devices, oil pumps.

Repairs on GARVIN Machines of Our Manufacture

JOHN B. STEVENS INC.

306 Hudson St. **New York City**

ELECTRIC HOISTS

Complete with Push Trolley and Collectors

1-Ton Capacity - - Price $300.00
2-Ton Capacity - - Price $450.00

We are also Manufacturers of Overhead Traveling Cranes from 1-ton to 10-tons.

Send for Detailed Specifications

Victor R. Browning & Co., Inc.
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Combined Truck and Hoist —

Canton Portable

You can easily figure the saving it effects—one man with a Canton does the work which ordinarily takes 6 to 10 men.

Canton lifts any shape or size piece, weighing up to 6000 pounds, ***moves*** it anywhere about the shop, ***and places it*** where you want.

Safety friction brake holds the load at any point, insuring safety to the operator and work.

Made in several sizes

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Canton Foundry & Machine Co.
CANTON, OHIO
New York Office: Carnegie Hall, 154 West 57th Street

BOX LOAD LIFTER TRADE MARK ELECTRIC HOIST

MOST RUGGED
AND
ECONOMICAL
HOIST BUILT

1 TON
to
20 TON
CAPACITY

ALL STEEL
SUSPENSION
92%
MECHANICAL
EFFICIENCY

500 lb.
to
2000 lb.
CAPACITY

BOX TYPE LOW HEAD ROOM CRANE

LIFTS ITS LOAD WITHIN 18 IN. OF CEILING

HEAVY DUTY ELECTRIC AND HAND TRAVELING CRANES
MADE IN EVERY SIZE AND TYPE FOR EVERY DUTY

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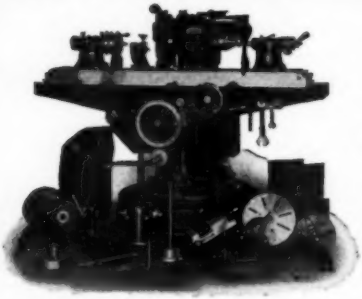
BOX CRANE & HOIST CORPORATION

2234 EAST ONTARIO ST., PHILADELPHIA, PA.
REPRESENTATIVES IN PRINCIPAL CITIES.

SIX Grinders In ONE



12"x36" Thompson Universal Grinder

Does every grinding operation required in the machine shop. Lowest cost work for plain, surface, die, cutter, edge and internal grinding. All standard machines equipped with auxiliary independent coarse cross feed for surface grinding.

Let us send you the Illustrated Booklet today!

The Thompson Grinder Company

1534 West Main St., Springfield, Ohio

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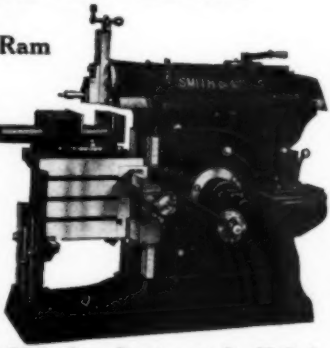
"V" Type Ram



12", 14", 16", 20", 25" Gear Box single pulley or motor drive, also 16", 20", 25" B. G. cone drive with belt shifter. 32" B. G. all geared single pulley or motor drive, all sizes crank type.

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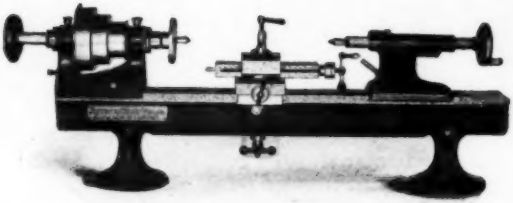


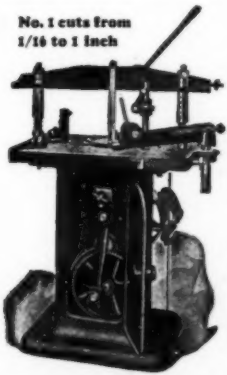
BENCH LATHE ENGINEERS

The economy of these lathes is in the small investment, to perform work, within their size, to better advantage than on larger and more expensive machines. In fact, for some classes of work there is no substitute for the fine accuracy and convenient operation obtained on Wade Bench Lathes.

Let us know your problems

THE WADE TOOL CO., Waltham, Mass.

No. 1 cuts from 1/16 to 1 inch



The DAVIS Keyseater

SPEED Combined with ACCURACY

Whether your aim is quantity production of standard parts, or the versatility required in every-day jobs, the DAVIS will best meet your requirements. The simplicity of its construction, its ease of operation, and the speed with which it can be set up for different jobs combine to make it a real cost reducer. Made in two sizes.

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Davis Keyseater Company

255½ Mill St., Rochester, N. Y., U. S. A.

ATLAS

Illustrated is our No. 55 Power Press adaptable to production work. With a ram travel of 27 feet per minute it has a capacity of 10 tons.

Write for catalog giving detailed description of this and other types.

ATLAS PRESS CO.
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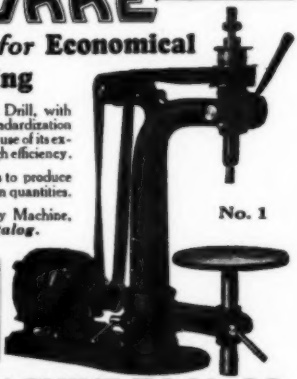
BURKE

A Good Choice *for* Economical Bench Drilling

The Burke 10" Sensitive Bench Drill, with Almond Chucks, has earned standardization with most machine tool dealers because of its exceptionally low original cost and high efficiency.

Motor drive; good range of speeds to produce really accurate work from 0 to 3/8" in quantities.

We also build a 12" Heavy Duty Machine, 9/16" Capacity. ***Ask for Catalog.***



No. 1

PRICES

No. 0 Belt Driven	$20.50
No. 1 Belt Driven	23.50
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all with Almond Chucks

THE BURKE MACHINE TOOL CO.
297 E. 16th St., CONNEAUT, OHIO, U. S. A.

Greenerd Arbor Presses

Established 1883

Illustration shows

No. 5 Press

12 tons pressure

TIMKEN BEARING EQUIPPED

Write for our Catalog showing 64 different styles.

Greenerd Arbor Presses

Nashua, N. H.

Townsend Centrifugal Multi-Blow Riveters

THE ONLY MACHINE THAT IMITATES HAND RIVETING IN EVERY WAY.

NUMEROUS TYPES FOR ALL KINDS OF WORK.

Round and Flat heads, hollow and cheek rivets from .008" to 5/16" without distortion or breaking of fragile material. In places inaccessible by any other method.

H. P. Townsend Mfg. Co.

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A Riveting Problem? LET GRANT SOLVE IT!

Many an awkward riveting job has had to be done by hand until they investigated the

GRANT NOISELESS SPINNING RIVETER

It is especially adapted to handling pieces of awkward shape and to work in hard-to-get-at places. And besides

It Is Noiseless

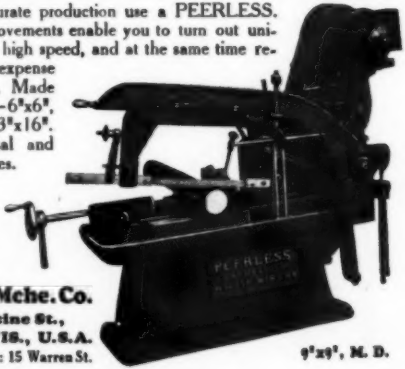
All work is uniform, as tight or loose as desired, with highly polished heads; its speed is a rivet per second, and it may be operated by low cost help.

Write for Catalog and send us a sample of your most difficult work for riveting

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

PEERLESS STANDARD TYPE HIGH SPEED METAL SAWING MACHINES

For fast, accurate production use a PEERLESS. Modern improvements enable you to turn out uniform work at high speed, and at the same time reduce blade expense and breakage. Made in three sizes—6"x6", 9"x9" and 13"x16". Also Universal and Vertical Types.



9"x9", M. D.

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Peerless Mche. Co.
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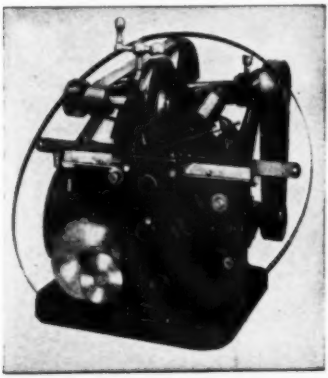
PORTER SAW GRINDERS

Last Longer with Less Upkeep



These machines have self adjusting ball bearings in wheel spindle and self adjusting bronze bearings in work spindle —they need no attention during their life.

This machine will sharpen metal slitting circular saws, power hack saw blades and metal and wood cutting band saws.

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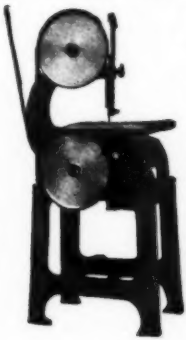
J. E. PORTER MACHINE CO.
1872 Jefferson Street, MUSKEGON, MICH.

The "JARVIS" Bench Band Saw

For Metal Cutting Operations



The "Jarvis" Bench Band Saw cuts metals—straight, curved or bevel. It is motor driven, operates from a lamp socket and is vibrationless. Ball bearing disc wheels, worm drive.

12" size cuts up to 1½" cold rolled steel. 16" size cuts up to 2" cold steel. Also made for cutting soft metals, Bakelite fibre, transite, wood, etc.

Details gladly sent upon request.

BENJ. E. JARVIS, Inc.
NEWARK, NEW JERSEY

Walls Sales Corp., Agents
96 Warren St., New York City

FOR the purpose of advertising machine tools and shop equipment the BLUE BOOK is unique. There is nothing else like it. Where else can you find anything to equal it in its combination of

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DIRECTNESS
HANDINESS
EFFICIENCY
and
ECONOMY

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"PRO-CUN-IER"

TAPPING DEVICES

Style "E" High Speed Tapper

For only a few dollars, a **"PROCUNIER"** reversible tapping head converts your drill press into a sensitive tapping machine.

Our brand new cork clutch reversible tapper (illustrated), taps perfect holes at 1 to 2000 R. P. M. or better.

Capacity 0 to ½": Price only $45.00

"Pro" tappers frequently tap ¼ to ½ million holes before even the clutch is replaced.

Here's all the "Pro" steel dog clutch tappers cost complete with our new style tap holder:

No. 1—¼" Capacity; Safety $28.00; Positive $22.00
No. 2—½" Capacity; Safety $34.00; Positive $28.00
No. 3—⅝" Capacity; Safety $40.00; Positive $34.00
No. 4— 1" Capacity; Safety $52.00; Positive $46.00

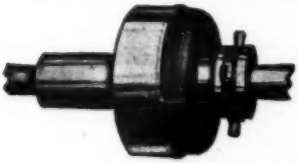
Send for details and free trial offer

Procunier Safety Chuck Co.
14 S. Clinton St., Chicago, Ill.

EDGEMONT

TYPE B EXPANDING CLUTCH

SIMPLE AND INEXPENSIVE



This "Type B" Clutch is simply constructed, having but three main parts besides the operating cam. It is powerful and efficient. The low cost and upkeep make it commendable for a large variety of applications.

Send now for our latest catalog showing complete line

The Edgemont Machine Co.
2900 Home Ave., Dayton, Ohio

Blower, Sprayer, Suction-cleaner

Instantly Convertible ~ No Installation

This portable electric blower delivers DRY air, **free from oil**, at high velocity, yet low pressure. It safely, quickly, and efficiently cleans motors, generators, converters, shafting, overhead piping, etc. Reduces fire risk and danger of "shorts" and "burnouts."

Instantly convertible for suction-cleaning stocks, bins, auto interiors, furniture, overhead pipes, shafts, line shafting, etc, or for spraying insecticides, deodorants, paints, lacquers, etc.

Attach to any light socket. Less than 2¢ an hour to run. Ball bearings—no oiling. 4 models. Used by over 20,000 concerns. Fully **guaranteed** by 20 year old company, originators and largest manufacturers of portable electric blowers.

Try this blower 10 days. Then pay for it or return it at our expense.

WRITE NOW For prices and descriptive folder No. 626; also our 10 day absolutely FREE trial offer we are now making for a **limited time.**

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Ball-bearing
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GUSHER COOLANT PUMP

OUR SERVICE!

At your request, we will gladly send an experienced engineer who will examine your coolant system and study your pump problems. He will return a report which will include recommendations for a solution. This is a "Gusher Service" which costs you nothing nor obligates you in any way.

We shall also be glad to send our complete catalog

THE RUTHMAN MACHINERY CO.
528 East Front St., Cincinnati, Ohio

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BOX
JIG

The Siewek Tool Company announce the addition of two new products, a Box Drill Jig and a Leaf Drill Jig. These are carried in stock ready for shipment in nine different sizes in the Box Jigs and six different sizes in the Leaf Jigs.

Cuts show the Box Jig and Leaf Jig.

Write for our catalogue No. 3

Siewek Tool Company,

Mfgrs. Siewek Rapid Clamping Drill Jigs, Box Jigs, Leaf Jigs. Fixture Locks and Drill Heads.

10232 Woodward Ave., Detroit, Mich.

SIEWEK
LEAF
JIG

ARMSTRONG

TRADE MARK REG. U.S. PAT. OFFICE

Planer and Shaper Tool

"as a goose-neck tool"

Takes cutter bits that any mechanic can quickly grind from stock shapes of high speed steel. Cutters can be set at 5 different angles, at any desired clearance. With cutter reversed, the ARMSTRONG Planer and Shaper Tool makes an excellent "goose-neck" tool for cutting keyways.

"any clearance"

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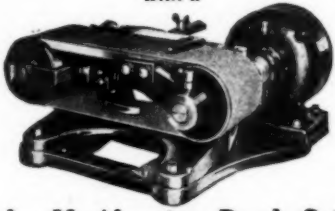
ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
308 N. Francisco Ave., CHICAGO, U. S. A.
London Branch: ARMSTRONG BROS. TOOL CO., LTD.
35 Upper Thames St., London, E. C. 4, England

Abolish Expensive Hand Finishing

with a



Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. ***Details of this and other styles and sizes on request.***

WALLS SALES CORP., 96 Warren Street NEW YORK

"KORO"

WELDING WIRE PRODUCTS

have become leaders in their respective fields of a distinctive quality which has been developed by an organization of engineers which has pioneered many welding trails through plants and machine shops.

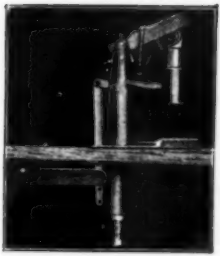
Koro Products are exceptionally adapted for general railroad and machine repair welding such as flue welding, building up guides and slides, also for general machine shop and boiler work repair.

Whether you have one or many welding problems, there's an electrode in the "Koro" line of welding wire to fit your requirements.

Write for valuable chart of Koro products.

KORO CORPORATION

3021 Madison St., BELLWOOD, ILL.



The R-T-G AUTOMATIC Double Action TRIP HAMMER

For Riveting and Staking on Fixed or Movable Joints

MANUFACTURERS the country over are using R-T-G Trip Hammers for pointing, burring, riveting and eyeleting (metal or fibre). Designed by expert engineers, they turn out better work in less time, and give absolute uniformity to tension on movable joints. Made in four capacities. Our engineers will gladly cooperate in helping you solve your problems.

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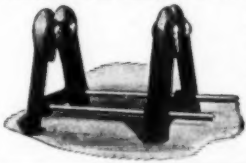
Rochester Tool & Gauge Corp.

ROCHESTER, NEW YORK, U. S. A.

Balancing Ways

Anderson Improved are Always Ready



Made in six sizes for balancing anything that turns on a shaft, up to 24,000 lbs.—pulleys, gin brushes, turbine rotors, crank shafts, polishing wheels, fly wheels, etc.; also for testing straightness of shafts, crank shafts, etc. No centers required; no leveling. Always ready and accurate; very sensitive.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20'
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bend	Bid	Bis	Bib	Ben	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.

STANDARDIZATION PAYS

UP TO

ONE HUNDRED HORSEPOWER

FROM STOCK!

Send for Booklet on Inverted Tooth and Roller Chain Drives

BOSTON GEAR WORKS SALES CO.
NORTH QUINCY, MASS.
Service Stations From Coast To Coast.

BOSTON GEARS

GEARS AND SPEED REDUCERS

ALL TYPES AND SIZES

QUALITY PREDOMINATES

"V" Belt Pulley Drives

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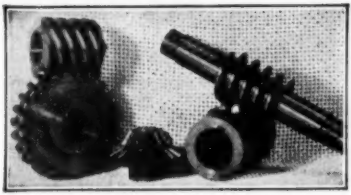
GEARS



All types and materials including ground thread worms

Massachusetts Gear & Tool Co.
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In Stock—Immediate Delivery

Gears, speed reducers, sprockets, thrust bearings, flexible couplings, pulleys, etc. A complete line is carried in our Chicago stock. Can also quote on special gears of any kind. Send us your blue prints and inquiries.

Write for Catalog No. 70

CHICAGO GEAR WORKS
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GRINDING WHEELS

NEW PROCESS
LOWER PRICES
QUICK DELIVERIES

A QUALITY PRODUCT

Send for Our Price List and Discounts

The Cincinnati Abrasive Wheel Co.
Covington, Ky.

CHAMPION
Tool Holders

Save Expensive Tool Steel

Made of drop-forged steel, thoroughly case-hardened. Absorbs heat from cutter, permits heavier cuts, lessens breakage.

The patented, protruding under-support, equipped with unbreakable "Mac-it" set-screw, increases the bearing for the cutter 40 to 70%, with a corresponding increase in cutter economy. Write for details.

Our Catalog also describes Champion Expanding Mandrels, Vises, Clamps, Emery Wheel Dressers, Shop Furniture, Etc.—Send for it.

The Western Tool & Mfg. Co.
SPRINGFIELD, OHIO

All Materials— 1/8" to 36"

Specify FORMICA for SILENCE

GEARS BY CROFOOT

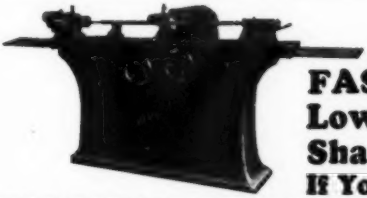
We Can Offer You REAL SERVICE

FOR nearly a quarter-century we have specialized in making gears of all kinds. During that time we have met and solved many problems and have a service department that can render valuable assistance by cooperating with your engineers in planning the *right* gearing for your job. Prices are extremely moderate and delivery is prompt. Specify CROFOOT on your next gear order.

Send Samples or Blue Prints for an Estimate

Charles E. Crofoot Gear Corp.

70 Central St., So. Easton, Mass.



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IF you are tieing up expensive grinding machines every time you have a broach sharpening job—with the usual unsatisfactory results—you have a real need for this machine. Built exclusively for this work, it does the job in one-third the usual time with cost savings of two-thirds—and the finished work is equal to new. It will pay you to investigate the COLONIAL.

Your request will bring complete information

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$33.00 COMPLETE

for molten lead, babbit, solder, white metal, etc.

A compact, self-contained pyrometer especially suited for measuring the temperature of molten soft metal. Almost instant readings are obtained as the bare thermo-couple is inserted directly into the molten metal or heat zone. Other models, both portable and stationary, for every temperature measuring requirement. ***Send for free catalog.***

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ETCHED METAL NAME PLATES

BRASS LABELS

THE SCHWERDTLE STAMP CO.
BRIDGEPORT, CONN.

Brocho Taper Reamer Drill

For drilling taper holes in solid metal in one operation to fit standard taper pins. Furnished in straight and taper shanks from No. 000 to No. 14, also in any sizes and tapers to blue prints. Made of best high speed steel, drills as quickly as an ordinary drill and makes nice smooth hole.

Save Time and Money

We are receiving repeat orders from all the most up-to-date firms in the country, machine tool builders, general machinery manufacturers, engine and electrical works, shipyards, etc.

Send us a trial order

A. C. Bellefleur & Son Co.

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T.H.L. Front Lever Bench Punch

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work. Weight 70 lbs.

PRICE $40

Extra Punches, 20 cents each; extra dies, 30 cents.

Capacity ½" holes through 3/16" steel; 13/32" through ¼" steel. Punches and dies in stock from ⅛" to ½".

Immediate shipment from stock

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(Est. 1890)

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Other Types In

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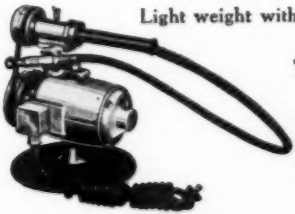
HEAVY DUTY—HIGH SPEED
Die Sinking Machines



Light weight with ABUNDANT POWER

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THE MALL METHOD

for

Cleaning— Scraping—
Finishing— Sawing—
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Speed ranges 300 to 21,000 r. p. m.

Detailed Catalog on Request

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Are used in all kinds of machines where high grade Joints are needed. The very highest grade of workmanship goes into our Joints.

We specialize on Joints

for instrument work and light drive as well as airplane use. Hundreds of thousands of Vanderbeek Universal Joints are in daily use.

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THE WILDER
Interchangeable
COUNTERBORE

Change Cutting Tools While Machine is in Operation !

The lock driving plunger of the WILDER which permits the easy change of cutting tools and which holds the cutting tool in the chuck or holder is Chrome Vanadium heat treated steel. Drive is based on 230,000 lbs. tensile strength to the square inch. The WILDER Chuck is made of the same material, ground for accuracy and perfect alignment.

Write for Details and Prices

THE WILDER TOOL CO.
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Stamped Blanks *in* Small Lots

SPECIFICATIONS:

Material—¼" C. R. Steel Limits + or − .002"
Finish—Exact Duplication. Flat—No burrs
Service—Two days

THE cost of producing the first hundred stampings as shown cost a customer in this case only $15.00 and $2.10 for the blanking of each additional hundred blanks ***at any time thereafter.*** Special stamped blanks of any size and shape can be produced for you to order at proportionate prices. ¶ Many parts offer the same savings for you. Write for further facts on possibilities of this blanking method in your work. Send prints or sample parts for quotation by return mail.

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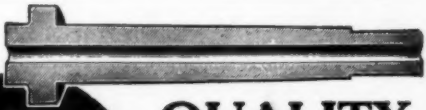
Representatives: A. L. Whittemore, 15 N. Jefferson St., Chicago, Ill.
Arthur C. Krause, 5526 N. 34th St., Milwaukee, Wis.



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QUALITY
Forgings & Shafting

IF THEY ARE "AMERICAN" you can depend upon them being sound, accurate and exactly as you specify. Our specialized equipment and years of experience enable us to furnish you the highest quality Piston Rods, Clutch Shafts, Lathe Spindles, Rams, Steel Pipes, Hydraulic Cylinders, etc., at very reasonable prices. Prompt delivery.

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Let Your Losses Stop

with the Broken Tap

Don't halt production and pay skilled mechanics to dig it out, often injuring the work.

A Handy Walton Tap Extractor

Will forstall these unnecessary losses. Insert its flutes into the broken tap, twist the end—an apprentice can do it in a jiffy—and the tap backs out without injury to the threads.

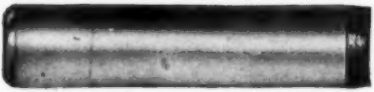
Made in three and four flute styles.

Let us send it to you for a sixty-day free trial

The Walton Company

302 Pearl St., Hartford, Conn.

ACME DOWEL PINS



Standard hardened and ground to within .0002" over listed sizes. Also carried oversize .001" for use in repair work, etc. Ask for Bulletin No. 551.

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Bulletin No. 501 describes and illustrates the various types and standard sizes of ACME Drill Bushings. Special sizes made to your order.

Bulletins and special low prices sent upon request.

ACME

ACME INDUSTRIAL CO.

419 Carpenter St., Chicago, Ill.

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To Industrial Plants

For the mutual benefit of yourselves and our advertisers, we want to be sure that the Blue Book goes, without cost, to those in your plant who can use it to good advantage.

Quite a number of you, particularly among automobile manufacturers, have sent us lists of the prominent men in your organizations who are most closely identified with the planning of your improvements and the selection or purchase of your machinery.

If you have not done this, you are earnestly requested to send us such a list of names, so that we may mail the Blue Book regularly every month to those of your own selection, without cost or obligation of any kind whatsoever. Simply tear out this page, write the names on the reverse side, and mail it to the publisher.

Our only object is to make the Blue Book the best buying and selling medium on earth between manufacturers of machine tools and shop equipment and plants such as yours.

(*See next page*)

.....,1931

HITCHCOCK PUBLISHING CO.
508 S. Dearborn St., Chicago, Ill.

Please send your Machine Tool Blue Book, without cost, to the following members of our organization, who have to do with planning the equipment of our machine shops and the selection or purchase of our machine tools and other shop requirements:

(Give both names and titles)

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It is understood that you are to use the above names as a mailing list for your Machine Tool Blue Book only, and that they will not be used for any other purpose.

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Hartford Taper Gage

Locates Inaccuracies Instantly

When turning tapers on end mills, profile cutters, twist drills, reamers, lathes, etc., accuracy is all important. The Hartford Taper Gage enables the workman to tell instantly whether a taper is right.

Simple—Inexpensive—Reliable

Any inaccuracy down to .001" can be instantly detected. Adjustable over a wide range—from No. 0 to No. 14 taper.

Write for Complete Details and Price

We Also Build Machinery on a Contract Basis And Design and Develop Special Automatic Machinery

Gears Cut To Order

Hartford Special Machinery Co.

285 Homestead Ave., Hartford, Conn.

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new—the AMES

"DIAL MIKE"

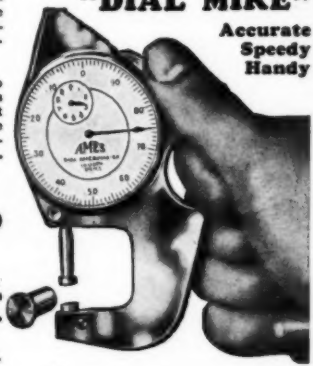
Accurate
Speedy
Handy

A modern dial reading micrometer that replaces the old style "mikes"—speedier to use—easier to read—extremely accurate.

Simply move the thumb to open the anvils. Closes automatically onto part being measured. Spindle lock makes it an adjustable snap gauge if desired.

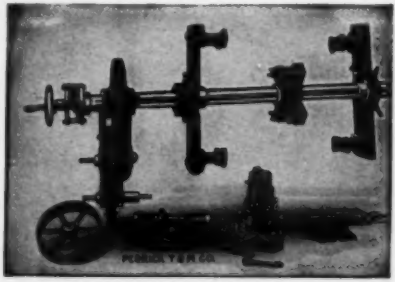
Capacity one inch

Price $12.50
from your dealer or postpaid



B. C. AMES CO.
Waltham, Mass.
DETROIT OFFICE:
902 Stephenson Bldg.

Pedrick Portable Tools



Portable Cylinder Boring Bars

For reboring in position locomotive cylinders and piston valves, cylinders of stationary engines, steam hammers, air compressors, and a wide range of other work. Often it finishes a job before it could be gotten into the shop, saving time, expense and costly delays. Its saving on work that is difficult to move is out of all proportion to its moderate cost.

As for durability, we doubt if you can wear out a Pedrick built bar. Many machines we made 25 years ago are still in use.

We also build Floor Type Boring Machines, Crank Pin Turning Machines, Pipe Benders, Portable Milling Machines, etc.

Write for the Catalog today

Pedrick Tool & Machine Co.

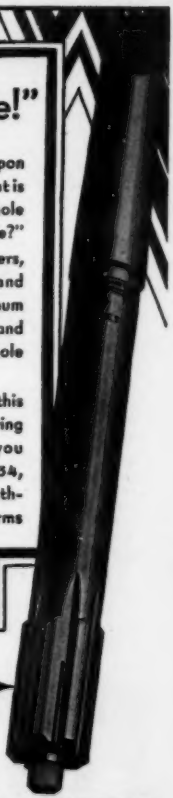
3644 N. Lawrence St., Philadelphia, Pa.

"Cost per Hole!"

The only sound basis upon which reamers should be bought is "How much will they cost per hole reamed during their useful life?"

Peerless High Speed Reamers, for production reaming, stand without a peer for the maximum number of holes per reamer, and most economical cost-per-hole reamed.

If you are interested in this modern, scientific way of buying reamers, ask us to send you Performance Digests Nos. 53, 54, 55, 64, 78, 84, 85 and 86, together with complete instruction forms for making a comprehensive reamer test in your own shop.



The CLEVELAND TWIST DRILL COMPANY
CLEVELAND
NEW YORK-CHICAGO-LONDON
SAN FRANCISCO

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

WHY A
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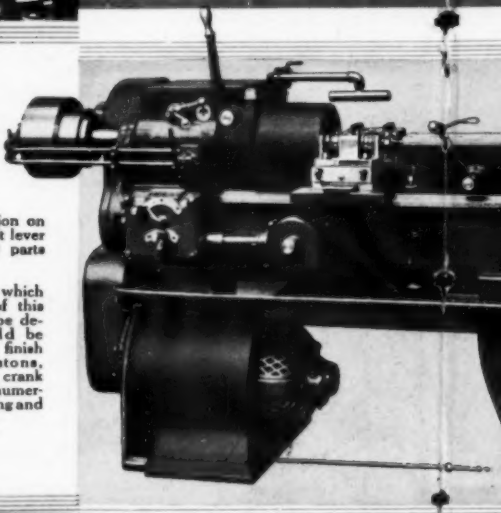


The production on the gear shift lever shown is 50 parts per hour.

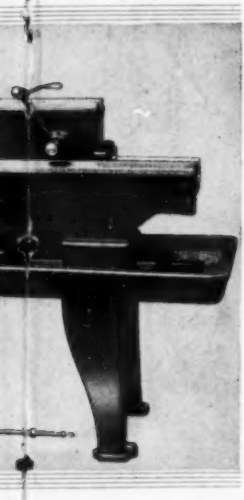
Other parts on which a machine of this type would be desirable would be rough and finish grooving pistons, forming ball crank handles and numerous small facing and forming jobs.

LE BLOND

The R. K. LeBl

CINCI

A
IAL DESIGN?



MANUFACTURERS have found that profitable production results from having a special machine for a special purpose.

For years LeBlond engineers have designed machines with this idea pre-eminent, yet planning so that the same piece of mechanism will work efficiently on other jobs as well.

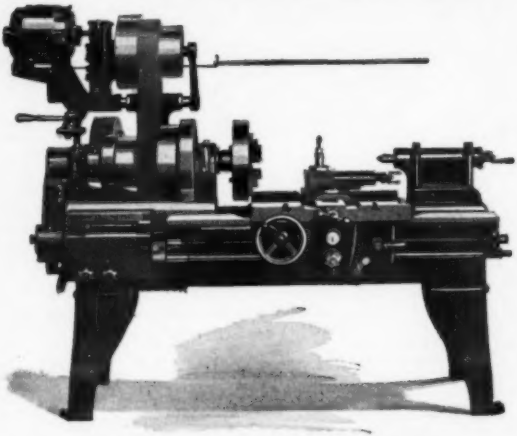
This has resulted in recognized LeBlond leadership in the industrial field for over forty years. Perhaps we have the solution to your problem.

Let us consult with you

LeBLOND Machine Tool Co.

CINCINNATI, OHIO, U. S. A.

The Cullman Lathe Drive



A Motor Drive Unit with Belt Drive Smoothness

Motorize and Modernize Your Cone Pulley Lathes with the Cullman Lathe Drive. Quickly and Easily Attached to Lathes; Only Four Bolt Holes Needed. No Other Alteration on Lathes.

Made in 1, 2, 3, 5 and 7½ horsepower sizes for Lathes, Shapers and Milling Machines.

Send for Information

CULLMAN WHEEL CO.

1359 Altgeld Street, Chicago, Ill.

SPROCKETS—SPEED REDUCERS—LATHE DRIVES

HARDINGE

COLLETS

We Are Collet Specialists

Collets for Lathes, Hand Screw Machines, Automatic Screw Machines and Milling Machines carried in stock. Prompt delivery made on specials.

Send for Complete Price List

Hardinge Brothers Inc.
4149 Ravenswood Ave.
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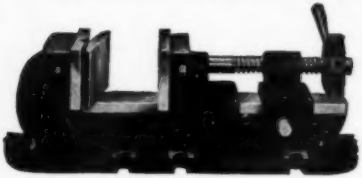
Gem Drill Press Vise

With Automatic, Quick-Acting, Powerful Grip



Holds Irregular Pieces Firmly

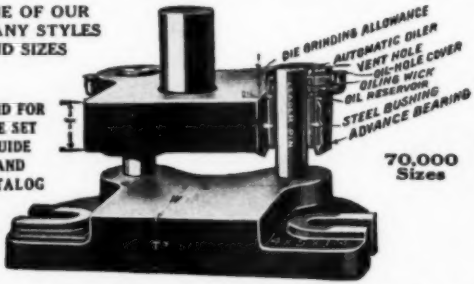
The jaws are made of steel, hardened and ground, with horizontal and vertical "V" grooves. The independent swivel jaw holds taper and irregular work with a bull-dog grip. Its quick action, powerful grip and adaptability make it ***the most efficient vise on the market.*** Made in three sizes. Write today for folder, picturing its use in drilling and milling operations.

J. E. Martin Tool & Die Works, 528 W. State St. Springfield, O.

Automatically Oiled Die Sets

ONE OF OUR MANY STYLES AND SIZES

SEND FOR DIE SET GUIDE AND CATALOG



70,000 Sizes

E. A. BAUMBACH MFG. CO.

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1810 South Kilbourn Ave., CHICAGO, ILLINOIS

Sales and Engineering Offices—Principal Cities U. S. A. and Canada

SAMPSON CHUCKS

Universal Independent

3-Jaw with 2 Sets of Jaws

4-Jaw with Solid Reversible Jaws

Size	List	Net	Size	List	Net
3	$ 29.00	$ 12.00	4½	$ 27.00	$ 15.00
4	33.00	14.00	6	32.00	17.50
5	36 00	15.00	8	37.00	21.00
6	41.00	17.00	10	47.00	25.50
7½	48.00	18.50	12	56.00	30.50
8	52.00	20 00	14	61.00	33.50
9	57.00	24.00	16	72 00	40.50
10½	64.00	28.00	18	93.00	52.50
12	75.00	35.00	20	107.00	65.00
14	100.00	55.00	24	139.00	85.00

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Plunket Improved Vises

Made Right—Work Right—Give Satisfaction

Drill Press Vise

With Extra Lugs for Bolting Down

No. 1— 6" jaws, 2½" deep, opens 5" - - $26.00
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We make a line of up-to-date Vises, for Drill Presses, Shapers, Milling Machines and Grinders. The picture shows our standard drill press vise as regularly furnished and carried in stock. All made of best materials. Our other Vises will be shown in following issues.

Prices are net, f. o. b. Chicago. Dealers' inquiries are solicited. Write for illustrated folder today.

J. E. Plunket Machine Co.

213-215 N. Ada Street, Chicago, Illinois

When You Move

Please drop us a line, giving both your ***old*** and ***new*** address. Or if the name of your company has been changed, please tell us the ***old*** name and the ***new*** one. That will enable us to keep our mailing list up to date, and will insure your receipt of this publication monthly.

If you wish this book addressed to any rticular individual in your plant, we shall be glad to comply with your request. There is no charge. Thank you.

Hitchcock Publishing Co.
508 So. Dearborn St., Chicago, Ill.

Wood-Working Machinery

For a comprehensive display of new, up-to-date wood-working machinery and allied equipment, as well as lists of used machinery, consult

Wood-Working Machinery

It's a publication similar to this, but devoted to the advertising of wood-working machines, including saw mill equipment. A copy will be sent you free on application.

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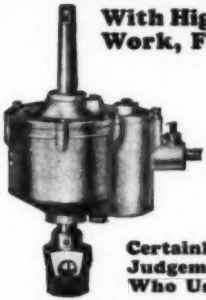
MORE PRODUCTION



With Higher Speed, Less Spoiled Work, Fatigue or Broken Taps

ETTCO

High Speed—Sensitive

TAPPING ATTACHMENT

Certainly You Can Be Guided by the Judgement of Hundreds of Factories Who Use ETTCOS.

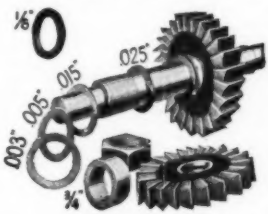
FIVE SIZES—UP TO ONE INCH TAPS

Try Ettcos at Our Expense. We have a nice New Circular ? ?

ETTCO TOOL CO., Inc., 594 Johnson Ave., BROOKLYN, N.Y.

Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



Stock sizes for arbors of following diameters: 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/8, 1 1/4, 1 3/8, 1 1/2, 1 5/8, 1 3/4, 1 7/8, 2, 2 1/4, 2 1/2, 3, 3 1/2 and 4 in. and larger.

Stock thicknesses: .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .032, .047, .063, .093 and .125 inch.

Other thicknesses up to 3.000" made to order, with keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company

3443 West Fort St., Detroit, Mich.

Analysis of Circulation of

HITCHCOCK'S MACHINE TOOL BLUE BOOK

By Dun and Bradstreet Ratings

(Corrected to September 1st, 1930)

To domestic concerns, and superintendents, works managers, production engineers, etc., in such concerns rated at—

Exceeding $1,000,000	1,937
$500,000 to $1,000,000	1,486
$300,000 to $ 500,000	1,402
$200,000 to $ 300,000	1,306
$125,000 to $ 200,000	1,892
$ 75,000 to $ 125,000	1,827
$ 50,000 to $ 75,000	1,558
$ 20,000 to $ 50,000	3,190
$ 10,000 to $ 20,000	2,132
$ 5,000 to $ 10,000	1,604
TOTAL to Private Concerns of over $5,000	18,334
Steam and Street Railway Mechanical and Purchasing Officials, Government and Municipal Plants, Technical Schools, Selected Foreign Importers and Users, Etc.	2,990
TOTAL to Buyers of Known Responsibility	21,324
*Concerns quoted in Dun or Bradstreet, but without Capital Rating	2,232
Concerns not yet in either Dun or Bradstreet, which includes new industries	1,424
Concerns rated $3,000 to $5,000	489
Miscellaneous	217
TOTAL CIRCULATION	**25,686**

*This group includes a considerable number of large concerns, and some small ones of high credit, whose capital rating is not given by either of the commercial agencies.

Classified Finding Index

Abrasive Wheels
Cinti. Abrasive Wheel Co., Covington, Ky.

Back Spot Facing Bars and Cutters
Wilder Tool Co., Greenfield, Mass.

Balancing Ways
Anderson Bros. Mfg. Co., Rockford, Ill.
Sundstrand Machine Tool Co., Rockford, Ill.

Ball Bearings
Boston Gear Works Sales Co., Norfolk Downs, Mass.

Band Saw Machines, for Metal
Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
Jarvis, Inc., Benj. E., Newark, N. J.
Wells Mfg. Corp., Three Rivers, Mich.

Bending Machines, Hand and Power
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Handley & Whittemore Co., Beloit, Wis.
Lowthwaite Mchs. Co., T.H.811E. 47th., N.Y.
Pedrick Tool & Machine Co., Philadelphia

Bending Rolls
Handley & Whittemore Co., Beloit, Wis.

Bins
Stackbin Corporation, Providence, R. I.

Blowers, Electric
Clements Mfg. Co., 6650 Narragansett Ave., Chicago, Ill.
Standard Electrical Tool Co., Cincinnati, O.

Bolt and Nut Machinery
Foote-Burt Co., Cleveland, O.

Boring Bars
Pedrick Tool & Machine Co., Philadelphia

Boring Bars, Cylinder
Pedrick Tool & Machine Co., Philadelphia

Boring, Drilling & Milling Machines
Defiance Machine Co., Defiance, O.

Boring Machines, Horizontal
Avey Drilling Machine Co., Cincinnati
Pedrick Tool & Machine Co., Philadelphia

Brakes, Hand Truck
Fisher Equipt., 1201 Caxton Bldg., Chicago

Brands, Burning
Schwerdtle Stamp Co., Bridgeport, Conn.

Broach Sharpening Machines
Colonial Broach Co., Inc., Detroit, Mich.

Broaches
Colonial Broach Co., Inc., Detroit, Mich.

Broaching Machine Work
Colonial Broach Co., Inc., Detroit, Mich.

Broaching Tools
Colonial Broach Co., Inc., Detroit, Mich.

Buffers, Bench Type
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Buffers, Combination Grinder
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Buffers, Floor Stand
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Buffers, Portable Electric
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.
Vim Electric Tool Co., 149 Broadway, N. Y.

Buffing Wheels
Hunt & Son, C. B., Salem, Ohio

Bushings, Drill
Acme Industrial Co., 419 N. Carpenter St., Chicago

Cap Screws, Hexagon Head
Elco Tool & Screw Corp., Rockford, Ill.

Center Grinders
U. S. Electrical Tool Co., Cincinnati, Ohio

Centering Machines
Sundstrand Machine Tool Co., Rockford, Ill.

Centers, Frictionless Live
Precision Gauge & Tool Co., Detroit, Mich'

Centers, Special
Precision Gauge & Tool Co., Detroit, Mich.

Chain Drives
Boston Gear Works Sales Co., Norfolk Downs, Mass.
Cullman Wheel Co., 1359 Altgeld St., Chgo.

Chains, Silent and Roller
Cullman Wheel Co., 1359 Altgeld St., Chgo.

Chamfering Machines, Automatic
Grant Mfg. & Mchs. Co., Bridgeport, Conn.

Chucking Machines
Heuser Mfg. Co., 1638 N. Paulina St., Chgo.
Stevens Inc., John B., 806 Hudson Street, New York

Chucks, Automatic
Precunier Safety Chuck Co., 14 S. Clinton St., Chicago

Chucks, Collet
Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago
Precunier Safety Chuck Co., 14 S. Clinton St., Chicago

Chucks, Drill
Etco Tool Co., Inc., 894 Johnson Ave., Brooklyn, N. Y.
Hagen, H. J., 109 Lafayette St., New York
Hartford Special Mchy. Co., Hartford, Conn.

Chucks, Drill and Tap
Precunier Safety Chuck Co., 14 S. Clinton St., Chicago

Classified Finding Index

Chucks, Lathe.
Hagen, H. J., 109 Lafayette St., New York
Stevens Inc., John B., 306 Hudson Street, New York

Chucks, Magnetic
J. & H. Electric Co., Providence, R. I.

Chucks, Quick Change
Glenzer Co., J. G., Detroit, Mich.
Procunier Safety Chuck Co., 14 So. Clinton St., Chicago
Wilder Tool Co., Greenfield, Mass.

Clamps, Parallel
Bay State Tool & Machine Co., Springfield, Mass.

Clutches, Friction
Conway Clutch Co., Cincinnati, O.
Edgemont Machine Co., Dayton, Ohio

Cold Saws
Burke Machine Tool Co., Conneaut, Ohio

Collets
Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago
Wade Tool Co., Waltham, Mass.

Contract Work Wanted
Burke Machine Tool Co., Conneaut, O.

Core Drills
Wilder Tool Co., Greenfield, Mass.

Counterbores and Spot Facers
Glenzer Co., J. C., Detroit, Mich.
Wilder Tool Co., Greenfield, Mass.

Couplings, Friction Clutch
Conway Clutch Co., Cincinnati, O.

Cranes, Electric Traveling
Box Crane & Hoist Corp., Philadelphia, Pa.

Cranes, Hand Traveling
Box Crane & Hoist Corp., Philadelphia, Pa.

Cranes, Overhead Traveling
Browning & Co., Inc., Victor R., Cleveland, Ohio

Cranes, Portable
Canton Foundry & Mchc. Co. Canton, Ohio

Cranes, Stationary, Radiating Jib
Box Crane & Hoist Corp., Philadelphia, Pa.

Crank Pin Turning Machine
Pedrick Tool & Machine Co., Philadelphia

Cutters, Keyseating
Davis Keyseater Co., Rochester, N. Y.

Cylinder Boring Machines, Portable
Pedrick Tool & Machine Co., Philadelphia

Demagnetizers
J. & H. Electric Co., Providence, R. I.

Dies, Blank and Forming
American Tool Works, Inc., Hartford, Conn.
Bay State Tool & Machine Co., Springfield, Mass.
Dayton-Rogers Mfg. Co., Minneapolis, Minn.
Elco Tool & Screw Corp., Rockford, Ill.
Wade Tool Co., Waltham, Mass.

Die Sets
Bausbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

Die Sinking and Engraving Machines
Keller Mech. Eng. Corp., 58A Washington St., Brooklyn, N. Y.

Die Threaders, Automatic
Townsend Mfg. Co., H. P., Hartford, Conn.

Dividing Heads
Stevens Inc., John B., 306 Hudson Street, New York

Drill Fixtures
Slewek Tool Co., Detroit, Mich.

Drill Heads
Slewek Tool Co., Detroit, Mich.

Drill Jigs, Universal
Heuser Mfg. Co., 1638 N. Paulina St., Chgo.
Slewek Tool Co., Detroit, Mich.

Drill Racks
Peerless Machine Co., Racine, Wis.

Drilling Machines, Automatic
Townsend Mfg. Co., H. P., Hartford, Conn.

Drilling Machines, Bench
Ames Co., B. C., Waltham, Mass.
Avey Drilling Machine Co., Cincinnati
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, O.
Winterhoff Tool & Machine Co., Elkhart, Ind.

Drilling Machines, Horizontal
Stevens Inc., John B., 306 Hudson Street, New York

Drilling Machines, Multiple Spindle
Avey Drilling Machine Co., Cincinnati
Foote-Burt Co., Cleveland, O.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric
Cincinnati Electrical Tool Co., Cincinnati, O.
Mall Tool Co., 7730 S. Chicago Ave., Chicago
Standard Electrical Tool Co., Cincinnati, O.
Strand Co., N. A., 5001 N. Lincoln St., Chicago
U. S. Electrical Tool Co., Cincinnati, Ohio
Vim Electric Tool Co., 149 Broadway, N. Y.
Winterhoff Tool & Machine Co., Elkhart, Ind.

Drilling Machines, Post
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Drilling Machines, Radial
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Classified Finding Index

Drilling Machines, Sensitive
Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Foote-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Vertical
Avey Drilling Machine Co., Cincinnati
Foote-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio

Drills, Right Angle
U. S. Electrical Tool Co., Cincinnati, Ohio

Drills, Taper Reamer
Bellefleur & Son Co., A. C., New London, Conn.

Drills, Twist
Cleveland Twist Drill Co., Cleveland, Ohio.

Drive Screws
Elco Tool & Screw Corp., Rockford, Ill.

Electric Blowers
Clements Mfg. Co., 6650 Narragansett Ave., Chicago, Ill.
Standard Electrical Tool Co., Cincinnati, O.

Electrical Instruments
Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago

Emery Wheel Dressers and Cutters
Taylor & Fenn Co., Hartford, Conn.
Western Tool & Mfg. Co., Springfield, O.

End Mills
Temkins-Johnson Co., Jackson, Mich.

Engravers, Mechanical and Hand
Schwerdtle Stamp Co., Bridgeport, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio

Experimental Work
American Tool Works, Inc., Hartford, Conn.

Filing Machines
Wardwell Mfg. Co., Cleveland, O.

Fixture Locks
Stewart Tool Co., Detroit, Mich.

Flexible Shaft Machinery
Keller Mech. Eng. Corp., 68A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chicago
U. S. Electrical Tool Co., Cincinnati, Ohio

Forgings, Hollow Bored
American Hollow Boring Co., Erie, Pa.

Furniture, Machine Shop
Western Tool & Mfg. Co., Springfield, O.

Gages, Dial
Ames Co., B. C., Waltham, Mass.
Standard Gage Co., Poughkeepsie, N. Y.

Gages, Pin, Plug, Ring and Snap
American Tool Works, Inc., Hartford, Conn.

Gages, Spline
Colonial Broach Co., Inc., Detroit, Mich.

Gauges, Taper
Hartford Special Mchy. Co., Hartford, Conn.

Gear Cutters
Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago

Gears
Boston Gear Works Sales Company, Norfolk Downs, Mass.
Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago
Crofoot Gear Corp., G.E., So. Easton, Mass.
Foote Gear Works, Inc., 4731 13th St., Chicago, Ill.
Massachusetts Gear & T. Co., Woburn, Mass.

Gears, Herringbone
Crofoot Gear Corp., G.E., So. Easton, Mass.
Foote Gear Works, Inc., 4731 13th St., Chicago, Ill.

Gears, Rawhide, Bakelite, Fabroil
Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago
Crofoot Gear Corp., G.E., So. Easton, Mass.
Foote Gear Works, Inc., 4731 13th St., Chicago, Ill.

Grinding Machines, Angle Plate
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Belt
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Wells Sales Corp., 98 Warren St., New York

Grinding Machines, Bench
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Steody Company, Whittier, Calif.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Mchs., Combination Buffer
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Steody Company, Whittier, Calif.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Cutter, Reamer and Tool
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mchs. & T. Co., Grand Rapids, Mich.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
Stevens Inc., John B., 306 Hudson Street, New York
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Cylindrical
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Standard Electrical Tool Co., Cincinnati, O.
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Disc
Bay State Tool & Machine Co., Springfield, Mass.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio
Winterhoff Tool & Mchs. Co., Elkhart, Ind.

Grinding Machines, Drill
Bay State Tool & Machine Co., Springfield, Mass.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, External
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Face
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Floor
Bay State Tool & Machine Co., Springfield, Mass.
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, Flexible Shaft
Bay State Tool & Machine Co., Springfield, Mass.
Keller Mch. Eng. Corp., 58A Washington St., Brooklyn, N. Y.
Stoody Company, Whittier, Calif.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Internal
Mall Tool Co., 8309 S. Chicago Ave., Chgo.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, Center Electric
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Lathe Electric
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Portable Electric
Cincinnati Electrical Tool Co., Cincinnati, O.
Keller Mech. Eng. Co., 58A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7750 S. Chicago Ave., Chgo.
Standard Electrical Tool Co., Cincinnati, O.
Stoody Company, Whittier, Calif.
Strand Co., N. A., 5001 N. Lincoln St., Chgo.
U. S. Electrical Tool Co., Cincinnati, O.
Vim Electric Tool Co., 149 Broadway, N. Y.
Winterhoff Tool & Mchs. Co., Elkhart, Ind.

Grinding Machines, Snagging
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Jarecki Mchs. & T. Co., Grand Rapids, Mich.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, Surface
Bay State Tool & Machine Co., Springfield, Mass.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Stevens Inc., John B., 306 Hudson Street, New York
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Tap
Bay State Tool & Machine Co., Springfield, Mass.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Tool
Bay State Tool & Machine Co., Springfield, Mass.
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Tool Post
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Universal
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Vertical Spindle
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Hack Saw Blades
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Peerless Machine Co., Racine, Wis.

Hack Saw Machines
Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
Peerless Machine Co., Racine, Wis.

Hammers, Trip
Rochester Tool & Gauge Corporation, Rochester, N. Y.

Hoists, Electric
Box Crane & Hoist Corp., Philadelphia, Pa.
Browning & Co., Inc., Victor R., Cleveland, Ohio

Hoists, Portable
Canton Foundry & Machine Co., Canton, Ohio
Hagen, H. J., 109 Lafayette St., New York

Hollow Mills
Wilder Tool Co., Greenfield, Mass.

Hose Couplings
Hunt & Son, C. B., Salem, Ohio

Index Centers, Single and Multi Spdl.
Stevens Inc., John B., 306 Hudson Street, New York

Classified Finding Index

Jigs and Fixtures
American Tool Works, Inc., Hartford, Conn.
Bay State Tool & Machine Co., Springfield, Mass.
Elco Tool & Screw Corp., Rockford, Ill.
Hartford Special Mchy. Co., Hartford, Conn.
Hauser Mfg. Co., 1038 N. Paulina St., Chgo.
Stowek Tool Co., Detroit, Mich.

Keyseating Machines
Davis Keyseater Co., Rochester, N. Y.

Lag Screws
Elco Tool & Screw Corp., Rockford, Ill.

Lathe Drives
Cullman Wheel Co., 1840 Altgeld St., Chgo.

Lathes, Automatic
Townsend Mfg. Co., H. P., Hartford, Conn.

Lathes, Bench
Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago

Lathes, Engine
Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Monarch Machine Tool Co., Sidney, O.

Lathes, Extension Bed Gap
LeBlond Mch. Tool Co., R.K., Cincinnati, O.

Lathes, Gap
LeBlond Mch. Tool Co., R.K., Cincinnati, O.

Lathes, Hand
Stevens Inc., John B., 308 Hudson Street, New York

Lathes, Hydraulic Automatic
Monarch Machine Tool Co., Sidney, Ohio

Lathes, Manufacturing
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Monarch Machine Tool Co., Sidney, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Lathes, Polishing and Buffing
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.

Lathes, Precision
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Monarch Machine Tool Co., Sidney, Ohio
Wade Tool Co., Waltham, Mass.

Lathes, Tool Room
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Monarch Machine Tool Co., Sidney, Ohio

Lathes, Turret
Monarch Machine Tool Co., Sidney, O.

Lubricator, Automatic
Norgren Co., Carl, A., Denver, Colo.

Mandrels, Expanding
Western Tool & Mfg. Co., Springfield, O.

Machine Screws
Elco Tool & Screw Corp., Rockford, Ill.

Millers, Bench
Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago

Millers, Tilted Rotary and Offset
Oesterlein Machine Co., Cincinnati, Ohio

Milling Attachments
Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Stevens Inc., John B., 308 Hudson Street, New York
Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Bench
Ames Co., B. C., Waltham, Mass.
Burke Machine Tool Co., Conneaut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Hand
Burke Machine Tool Co., Conneaut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.
Superior Machine & Eng. Co., Detroit, Mich.

Milling Machines, Manufacturing
Kearney & Trecker Corp., Milwaukee, Wis

Milling Machines, Plain
Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Portable
Fedrick Tool & Machine Co., Philadelphia

Milling Machines, Spline
Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R.K., Cincinnati, O.

Milling Machines, Vertical
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Name Plates, Etched and Stamped
Schwerdtle Stamp Co., Bridgeport, Conn.

Classified Finding Index

Nut Setters, Electric
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.
Vim Electric Tool Co., 149 Broadway, N. Y.

Nuts, Machine Screw
Elco Tool & Screw Corp., Rockford, Ill.

Pins, Leader And Dowel
Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

Pipe Bending Machines
Pedrick Tool & Machine Co., Philadelphia

Pipe Plugs, Square Head and Slotted
Elco Tool & Screw Corp., Rockford, Ill.

Planers, Valve Seat, Portable
Pedrick Tool & Machine Co., Philadelphia

Polishing and Buffing Machines
Cincinnati Electrical Tool Co., Cincinnati, O.
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Mall Tool Co., 7730 S. Chicago Ave., Chicago
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Presses, Arbor
Atlas Press Co., Kalamazoo, Mich.
Greenerd Arbor Presses, Nashua, N. H.
Wilson, R. K., Buffalo, N. Y.

Presses, Broaching
Greenerd Arbor Presses, Nashua, N. H.

Presses, Foot
Taylor & Fenn Co., Hartford, Conn.

Presses, Power
Hendley & Whittemore Co., Beloit, Wis.

Presses, Punch
Lewthwaite Mchs.Co.,T.H.,311E.47th.,N.Y.

Presses, Screw
Jarecki Mchs. & T. Co., Grand Rapids, Mich.

Pulley Machinery
Avey Drilling Machine Co., Cincinnati

Profiling Machines
Wade Tool Co., Waltham, Mass.

Pulleys, Iron, Solid and Split
Conway Clutch Co., Cincinnati, O.

Pumps, Lubricant
Buthman Machinery Co., Cincinnati, O.

Punch Press Feeds
Wittek Mfg. Co., 4909 W. 24th Place, Chgo.

Punch, Shear and Bender, Hand
Armstrong-Blum Mfg. Co., 841 N. Francisco Ave., Chicago

Punches, Hand
Armstrong-Blum Mfg. Co., 841 N. Francisco Av., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mchs. Co., T. H., 311 E. 47th, New York
Whitney Metal Tool Co., Rockford, Ill.

Punches, Power
Hendley & Whittemore Co., Beloit, Wis.

Punches and Dies
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mchs.Co.,T.H.,311E.47th.,N.Y.

Punches and Shears
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Hagen, H. J., 109 Lafayette St., New York

Pyrometers
Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago

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Cleveland Twist Drill Co., Cleveland, Ohio.
Schellenbach Hunt Tool Co., Cincinnati, O.

Reamers, Portable Electric
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Riveters, Multiple Spindle
Grant Mfg. & Mchs. Co., Bridgeport, Conn.

Riveters, Pneumatic
Grant Mfg. & Mchs. Co., Bridgeport, Conn.

Riveting Machines
Grant Mfg. & Mchs. Co., Bridgeport, Conn.
Townsend Mfg. Co., H. P., Hartford, Conn.

Rod Cutters
Armstrong-Blum Mfg. Co., 841 N. Francisco Av., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mchs.Co.,T.H.,311 E.47th,N.Y.

Roll Forming Machines
McKinney Tool & Mfg. Co., Cleveland, Ohio

Rotary Tables, Hand Feed
Stevens Inc., John B., 206 Hudson Street, New York

Classified Finding Index

Saw Sharpening Machines
Porter Mchy. Co., J. E., Muskegon, Mich
Scherr Co., Geo., 143 Liberty St., New York
Wardwell Mfg. Co., Cleveland, O.

Saws, Electric Hand
U. S. Electrical Tool Co., Cincinnati, O.

Scraping Machines, Hand & Pneumatic
Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio
Vim Electric Tool Co., 149 Broadway, N. Y.

Screw Driving Machines, Automatic
Reynolds Machine Co., Massillon, Ohio

Screw Machines, Automatic
Townsend Mfg. Co., H. P., Hartford, Conn.

Screws, Cap, Drive, Lag, Mch. & Wood
Elco Tool & Screw Corp., Rockford, Ill.

Set-Up Appliances
Heuser Mfg. Co., 1638 N. Paulina St., Chgo.
Standard Shop Equip. Co., Philadelphia, Pa.

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Mall Tool Co., 7730 S. Chicago Ave., Chgo.
Strand Co., N. A., 5001 N. Lincoln St., Chgo.
U. S. Electrical Tool Co., Cincinnati, Ohio

Shafts, Steel
American Hollow Boring Co., Erie, Pa.

Shaping Machines
Osborne & Sexton Machy. Co., Columbus, O.
Smith & Mills Co., Cincinnati

Shears, Alligator
Canton Foundry & Machine Co., Canton, O.

Shears, Hand
Armstrong-Blum Mfg. Co. 341 N. Francisco Av., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Machine Co., T. H., 311 E. 47th St., New York
Whitney Metal Tool Co., Rockford, Ill.

Shears, Power
Hendley & Whittemore Co., Beloit, Wis.

Slotting Machines, Screw Head
Stevens Inc., John 316 Hudson Street, New York

Spacing Washers
Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery
American Tool Works, Inc., Hartford, Conn.
Superior Machine & Eng. Co., Detroit, Mich.
Wade Tool Co., Waltham, Mass.

Speed Reducers, Worm, Spur and Herringbone
Boston Gear Works Sales Co., Norfolk Downs, Mass.
Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago
Cullman Wheel Co., 1359 Altgeld St., Chgo.
Foote Gear Works, Inc., 4731 19th St., Chicago, Ill.

Sprockets
Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago
Cullman Wheel Co., 1359 Altgeld St., Chgo.
Massachusetts Gear & T. Co., Woburn, Mass.

Stamped Metal Products
Dayton-Rogers Mfg. Co., Minneapolis, Minn.

Stamps, Steel and Rubber
Schwerdtle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board
Schwerdtle Stamp Co., Bridgeport, Conn.

Straightening Machines
Whitney Metal Tool Co., Rockford, Ill.

Stud Setters
Procunier Safety Chuck Co., 14 S. Clinton St., Chicago

Tap Extractors
Walton Co., Hartford, Conn.

Tap Holders
Procunier Safety Chuck Co., 14 S. Clinton St., Chicago

Tapper, Hand
Bay State Tool & Mch. Co., Springfield, Mass.

Tapping Machines and Attachments
Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Ettco Tool Co., Inc., 594 Johnson Ave., Brooklyn, N. Y.
Leland Gifford Co., Worcester, Mass.
Procunier Safety Chuck Co., 14 S. Clinton St., Chicago
Whitney Metal Tool Co., Rockford, Ill.

Threading Machines, Automatic, Stud
Grant Mfg. & Mchs. Co., Bridgeport, Conn.

Threading Tools
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tool and Die Makers
Dayton-Rogers Mfg. Co., Minneapolis, Minn.

Tool Holders
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
Western Tool & Mfg. Co., Springfield, O.
Wilder Tool Co., Greenfield, Mass.

Classified Finding Index

Tools, Boring
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Lathe and Planer
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Machinists'
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Trip Hammers
Rochester Tool & Gauge Corporation, Rochester, N. Y.

Tube Flanging Machines
Grant Mfg. & Mchs. Co., Bridgeport, Conn.

Turntables
Canton Foundry & Machine Co., Canton, O.

Universal Joints
American Tool Works, Inc., Hartford, Conn.
Boston Gear Works Sales Company, Norfolk Downs, Mass.

Used and Rebuilt Machinery
American Oil Pump & Tank Co., Cincinnati, Ohio
Automatic Machine & Engineering Co., Inc., Detroit, Mich.
Hellefleur & Son Co., A. C., New London, Conn.
Bennett Machinery Co., 90 Church St., New York, N. Y.
Bernstein & Co., Geo. M., 221 N. Elizabeth St., Chicago, Ill.
Bieser Mfg. Co., J., Springfield, O.
Brandes Machinery Co., Cleveland, Ohio
Brandt Machinery Co., Pittsburgh, Pa.
Broadway Machinery Co., 211 Centre St., New York, N. Y.
Brotherhood & Son, Percy M., 25 Church St., New York, N. Y.
Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Cincinnati Mchy. & Supply Co., Cincinnati, O.
Crawford & Co., Inc., F. H., 50 Church St., New York
Davis Machinery Exchange, Toledo, O.
Donahue Steel Products Co., 74th and Ashland Ave., Chicago
Eastern Machinery Co., Cincinnati, O.
Easley Machinery Co., E. L., 561 Washington Blvd., Chicago
Foster Machinery Co., Cleveland, O.
Hill, Clarke & Co., 649 W. Washington Blvd., Chicago
Hyman & Sons, Joseph, Philadelphia, Pa.
Indianapolis Mchy. & Supply Co., Indianapolis, Ind.
Interstate Mchy. Co., 120 S. Clinton, Chgo.
Iroquois Machinery Co., Buffalo, N. Y.
Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.
Jones Machinery Co., Detroit, Mich.
Jones Machine Tool Co., Cincinnati, Ohio
Knoedler Machinery Exch., Philadelphia, Pa.
Lassy Co., E. A., Cincinnati, O.
Klauber Mchy. Co., E. L., St. Louis.
McDonald Machinery Co., St. Louis
Machine Tools Sales Co., Philadelphia, Pa.
Marr-Galbreath Mchy. Co., Pittsburgh, Pa.
Midwest Equipment Co., 629 W. Lake St., Chicago, Ill.
Mid-West Machine Tool & Supply Company, Davenport, Iowa
Miles Machinery Co., Saginaw, W. S., Mich.
Morey and Co., Inc., 408 Broome St., N. Y.
Morris Machinery Co., Inc., Newark, N. J.
Nelson Machinery Co., Green Bay, Wis.
Norton-Broadway Mchy. Co., Cincinnati, O.
O'Brien Machinery Co., Philadelphia
Osborne & Sexton Machy. Co., Columbus, O.
Palmer-Edwards Co., Flint, Mich.
Partridge, Arthur S., St. Louis, Mo.

Used and Rebuilt Machinery—Cont.
Randle Machinery Co., Cincinnati, O.
Reeve-Fritts Co., 558 W. Washington, Chgo.
Reliance Mchy. Sales Co., Pittsburgh, Pa.
Riverside Machinery Depot, Detroit, Mich.
Russell Machine Co., Pittsburgh, Pa.
Saltzman, B. L., 524-26 W. Van Buren St., Chicago, Ill.
Scott-Sanebach Mchy. Co., 4807 W. 20th St., Chicago
Severin Machinery Corp., 30 Church St., New York
Simmons Machine Tool Corp., Albany, N. Y.
State Mchy. Co., Inc., New Haven, Conn.
Stoehr Mchy. Co., A. M., 106 So. Jefferson St., Chicago
Strafer Machinery Co., Jersey City, N. J.
Strong, Carlisle & Hammond Co., Cleveland
Sun Machinery Co., Newark, N. J.
Surplus Material & Mchy. Co., Detroit, Mich.
Taylor-Hall Welding Corp., Worcester, Mass.
United Mchy. & Supply Co., St. Louis.
Victor Machinery Exchange, Inc., 251 Centre St., New York
Wachs-Gregg & Co., 117 N. Jefferson St., Chicago
Wertman Mchy. Co., M. A., Cleveland, O.
West Penn Machinery Co., Pittsburgh, Pa.
White Machy. Co., A. D., 108 N. Jefferson St., Chicago
Wigglesworth Mchy. Co., Boston, Mass.

Vises, Drilling Machine
Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
Bay State Tool & Machine Co., Springfield, Mass.
Hagen, H. J., 109 Lafayette St., New York
Heuser Mfg. Co., 1638 N. Paulina St., Chgo.
Martin Tool & Die Works, J. E., Springfield, O.
Plunket Mchs. Co., J. E., 215 N. Ada, Chgo.

Vises, Machinists'
Bay State Tool & Mch. Co., Springfield, Mass.
Plunket Mchs. Co., J. E., 215 N. Ada, Chgo.
Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine
Hagen, H. J., 109 Lafayette St., New York
Hartford Special Mchy. Co., Hartford, Conn.
Heuser Mfg. Co., 1638 N. Paulina St., Chgo.
Plunket Mchs. Co., J. E., 215 N. Ada, Chgo.
Stevens Inc., John B., 306 Hudson Street, New York

Vises, Shaper
Plunket Mchs. Co., J. E., 215 N. Ada, Chgo.

Welders, Butt, Spot and Seam
Lenney Mchs. & Mfg. Co., Warren, Ohio

Welding Wire
Kore Corporation, Bellwood, Ill.

Wood Screws
Elco Tool & Screw Corp., Rockford, Ill.

Wood Working Machinery
Handley & Whittemore Co., Beloit, Wis.

Worms
Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago
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"X-L" Adjustable Inserted Spiral Blade Shell and Machine Reamer

Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production. The range of expansion is from .100" in the smaller sizes to .150" in the larger sizes. Made with High Speed Steel Blades.

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Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus $3.00 for name and address. Minimum charge, $6.00. No display permitted.

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Shapers, Smith & Mills, 16", 12".

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Excellent Used Machine Tools.

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Press brake, 12' 6", capacity ⅜".
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Advise us of requirements.

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United Mchry. & Supply Co., 1241 Walton St., St. Louis, Mo.

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Miller, No. 2 Cincinnati plain.
Pipe threader, Oster ½ to 4" dies.
Pipe threader, 2" m. d., with dies.
Punch, gang, 32" bet. housings.
Punch and shear, ½" in ⅜".
Rolls, (3), 7'x7", 6'x5", 6'x9".
Shaper, 24" back geared.
Shear, 42" gap, 52" squaring.
Shears, 11'x16 ga.; 6'x16 ga.
Tapper, No. 2X Garvin.

FOR SALE BY

Arthur S. Partridge, - - - 415 Pine St., St. Louis, Mo.

Bending roll, 7' Hilles & Jones, belt drive.
Boring mill, 50" Niles vertical, 2 hexagon swivel heads.
Brake, 50" Robinson cornice, 4 pedals.
Pipe threading machine, 2" Bignall & Keeler, motor drive.
Punch, 32" Long & Allstatter multiple or gang.
Shear, squaring, 30" Pexto, foot power.
Welder, 20 k. w. Toledo spot, 24" throat.

USED AND REBUILT MACHINERY

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Interstate Machinery Co., - - 130-2 So. Clinton St., Chicago, Ill.

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Keyseater, No. 2 Mitts & Merrill.
Lathe, 26x12' Putnam q. c. g.
Miller, No. 2 Cinti, univ. complete.
Press, No. 5 Bliss, 108" between housings, 10" stroke.
Press, 78½ Bliss 10" str., wt. 65,000.
Shear, 60" Foot square.
Shear, 8' 16 ga. all steel, power.
Shear, 10' 14 ga. Loy & Nawrath.
Welders, 12 k. w. Acme & A. E. F.
Wire straighteners, Wells cut-off att.

Middle-West's most complete stock of sheet metal machinery

FOR SALE BY

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Automatic screw machines, No. 00 B. & S., ser. nos. 5155 & 5167. ea...$ 450.
Auto. screw mch., No. 0G Brown & S., serial no. 4290 with a. c. motor 800.
Automatic screw machine, No. 0 B. & S., serial no. 3830 325.
Auto. screw mchs. No. 0 B. & S. nos., 3340, 3495, 3831, slotting att. each 450.
Automatic screw mche., No. 0 B. & S. turret former, serial no 3123 200.
Automatic screw machine, No. 2 Brown & Sharpe serial no 6379 750.
Automatic screw machine, 1¼" Gridley 4 spindle model F 500.
Automatic screw machine, 2¼-3" Cleveland model A, square pan 500.
Automatic screw machine, 2¼-3¼" Cleveland model A, square pan 500.
Drill, 4-spindle L. & G., h. s., b. b., tapping attachment on 1 spindle; p. f. 2 spindles, 1 plain spindle 700.
Gear hobber, S. & S. No. 0, capacity 12"x10"x6¾ d. p 300.
Gear cutter, B. & S. No. 3 26" for spur gears 300.
Grinder, No. 190 Greenfield universal cutter and tool, complete 150.
Grinder, No. 1 Norton universal cutter and tool, power feed 250.
Grinder, No. 2 Brown & Sharpe automatic surface, magnetic chucks 450.
Grinder, Capitol internal, capacity 3/16" to 2"x2" 150.
Grinder, No. 7 Gardner 30", b. b. with press, belted motor drive 325.
Lathe, 16"x6' LeBlond quick change 450.
Lathe, 18"x6' Hendey quick change, taper attachment serial no 19189 800.
Lathe, 18"x7' South Bend, q. c., a. c., motor drive and chucks 600.
Lathe, 18"x9' Chard semi-quick change gear 425.
Lathe, 18"x8' Davis heavy duty, q. c. g., d. b. g., 14" 4-jaw chuck 550.
Lathe, 30"x13' H. S. & G. heavy duty, q. c., d. b. g. 16,000 lbs 1,250.
Miller, No. 3 Cincinnati, cone drive, old style 350.
Miller, No. 3 Kempsmith, cone drive, with c/s and vise 600.
Miller, No. 1 Garvin universal, fully equipped 450.
Miller, Cleveland universal, No. 1 g. h., fully equipped 750.
Miller, No. 2 MU. Garvin universal, fully equipped 850.
Miller, Briggs, G. & E. manufacturing, 16" 150.
Miller, No. 5 Becker vertical, no rotary 525.
Miller, No. 7 Becker, Lincoln type 125.
Miller, No. 21 Garvin power feed, oil pump 150.
Miller, Hendey, Lincoln type 100.
Miller, No. 12 Brown & Sharpe production type 150.
Miller, Ingersoll slab, 42"x36"x9' 1,000.
Planer, 24x24x8 Fitchburg, 1 head 200.
Planer, 36"x36"x12' Cincinnati with 2 heads 1,200.
Press, No. 4 Rockford o. b. i. punch, 2½" stroke, 3500 lbs 375.
Press brake, 10' Ohl power, No. 10 gauge 1,500.
Screw machine, No. 1. B. & O. plain head, 13/16" capacity 225.
Screw machine, No. 0 Brown & Sharpe hand 150.
Separator, Curtis oil, 1 bushel 275.
Separator, oil, American 1½ bushel 300.
Shaper, 20" Cincinnati, crank, back geared, vise and c/s 550.
Shaper, 20" Columbia back geared crank 750.
Shear, 42" Niagara foot power, No. 14 gauge capacity 100.
Turret lathe, 24x10" Milholland, for chuck and bar work 650.
Turret lathe, 32"x36" Acme with chucking equipment 500.
Turret lathe, 24" Steinle, 4" hole, side carriage 300.

Automatics, 14" Fay.
Automatic, No. 0 Brown & S. b. d.
Automatic, No. 55 National Acme.
Air compressors, 20 to 1500 cu. ft.
Bender, No. 6-C Wallace, m. d.
Blowers, Nos. 3 & 4 North Amer.
Bolt cutter, 2½" Acme, sgl. hd. m. d.
Bolt cutter, 1½" Landis, dbl. head.
Bolt cutter, 1" Landis, 3 hds., m. d.
Boring mill, 10'-16' Betts, 2 hds. m. d.
Bor. mill, hor., No. 1 Cleve. 2½" bar.
Boring mill, floor type, 5½" D. & H.
Brake, 5' press type, 10 gauge.
Brake, 6' hand, 16 gauge.
Brake, 8' D. & K. 10 ga. box & pan.
Brake, 10' Dreis & K. 3/16", m. d.
Bulldozers, Nos. 2, 4, 6, 28, 29 & 30.
Die threader, Smalley General, dies.
Dieing mches., 25 & 50 ton H. & W.
Drill, 21" Rockford, tap. att. m. d.
Drill, No. 3 Defiance, No. 5 M.T. m. d
Drill, radial, 2½' Fosdick, t. a., b. d.
Drill, radial, 4' Prentice, t. a., b. d.
Drill, radial, 6' Dreses, s. p. d.
Drill, radial, 6' American, universal.
Flanger, McCabe, ½" capacity, dies.
Gear cutters, 11", 24" & 36" Gleason.
Gear cutter, spur, 36"x10" Newark.
Gear cutter, 72" Gould & Eberhardt.
Gear hobber, 6" Schuchardt & Sch.
Gear hobber, 18" Gould & E. m. d.
Gear tester, 18" Gleason, bevel.
Grinder, rad., 14" M. & D., m. d.
Grinder, internal, No. 70 Heald.
Grinder, surface, No. 16 Blanchard.
Grinder, surface, 14" Arter.
Grinder, tool & cut., No. 2 Walker.
Hammer, Blacker, power, 35-lbs.
Hammer, 80-lb. Bradley, cush. helve.
Hammer, 200-lb. Bradley, compact.
Hammers, Nos. 3-B, 4-B, 6-N Nazel.
Hammers, steam, 600 lb. to 6000 lbs.
Jacks, 35-ton Barrett, ball bearing.
Lathe, 16"x8' Hendey q. c. g.
Lathe, 18"x8' Hendey grd. hd., m.d.
Lathe, 20"x8' Hendey, tie bar, t. a.
Lathe, 24"x16' Bridgeford, grd. hd.
Lathe, 48"x26' Bridgeford, g.hd.m.d.
Lathe, turret, No. 6 Warner & S.
Lathe, turret, No. 8 Warner & S.
Lathe, turret, 24" Steinle, 6¾" hole.
Lathe, turret, 24" Libby, 7½" hole.
Lysholm tables, 72"x30".
Miller, duplex, 24" Cincinnati auto.
Miller, plain, No. 2 Cincinnati s.p.d.
Miller, plain, No. 2-A Milwaukee.
Miller, Ingersoll, 48"x48"x20' adj. rail.
Miller, univ., No. 3 LeBlond, b. d.
Miller, vert. No. 5 Brown & Sharpe.
Nut tapper, 6-sp. Acme semi-auto.
Pipe mchs., 8" Oster, 8" Williams.
Pipe machine, 2" Landis.
Planer, 30"x30"x16' Woodward & P.
Planer, 48"x48"x12' D. & H. m. d.
Planer, o. s., 36"x36"x16' D. & H.
Planer, rotary, 48" Niles, m. d.
Presses, arbor, Nos. 7, 17 Greenerd.
Press, o.b.i. Ferracute Cl. 3" stroke.
Press, o. b. i. No. 21 Bliss, b. d.
Press, hyd. 100-t. Watson-Stillman.
Press, hydraulic, 1,000 ton United.
Press, s. s., 13"x192", 2" stroke.
Press, No. 75 Toledo, 1½" stroke.
Press, No. 78½ Toledo, t. r. 10" str.
Press, No. 92 B Toledo, d.c. 2½" str.
Press, No. 12-E Bliss, 54"x144", 10" str.
Press, screw, No. 87 Niagara.
Press, screw, No. 159½ Toledo.
Press, wheel, 200-ton Caldwell.
Press, wheel, 300-ton Wood, 60".
Punch, hor., Cleveland, 1" thru 1".
Punch, hand, Shatz, bar and angle.
Punch & sh. No. 6 L. & A. ¾" thru ¾".
Punch & sh., No. 24-U Buffalo m.d.
Punch, multiple, No. 5 H. & J. 10'.
Riveters, air, hammer, spinning.
Rolls, angle, 4"x4"x⅜" W. & W.
Rolls, bending, 8'x14 ga. hand.
Rolls, bending, 12'x⅜" H. & J. d. e.
Roller, thread, No. 50 Waterb.-Far.
Sand blast, Pangborn, 90", ER-1.
Saw, band, metal No. 2 Klem, m.d.
Saw, cold, 48" Newton, m. d.
Saw, fric. Model 1-A Hunter, 24".
Saw, friction, Nos. 2 & 3 Ryerson.
Saw, hack, No. 5 Marvel, b. d.
Saw, univ., Peerless, 6x6", m. d.
Shapers, 16", 20", 24" & 36" G. & E.
Shaper, 20" Ohio crank, vise, b. d.
Shaper, 24" Potter & Johnston, b. d.
Shaper, 24" Flather, motor drive.
Shaper, 48" Morton, draw cut.
Shear, angle, 6"x6"x½" Cleveland.
Shear, alligator, 1½", 2", 3" & 4".
Shear, bevel, Lennox ¼".
Shear, gang slitter, No. 235-A Bliss.
Shear, guil. No. 3 H. & J. 2½" sq.
Shear, guil. No. 5 Cleveland, 3½" sq.
Shear, rotary, ¼" Ryerson.
Shear, sq., 20"x18 ga. Bliss power.
Shear, square, 36"x16 ga. Pexto.
Shear, sq. 8'x16 ga. Ohl.
Shear, 54"x⅜" Garrison, 24" gap, m.d.
Shear, sq. 12'x14 ga. Kutscheid.
Shear, 12'x⅜" Wheeling, 31" gap, m d.
Straightener, 60" Nat. 14 ga. 17 rolls.
Straightener, H. & J. 48"x⅜" 8 rolls.
Straight'r, 48" United, 16 ga. 13 rolls.
Straightener, Phila., 7'x⅜", 8-rolls.
Straightner, 1½" round Abramson.
Straightener, 4" round Abramson.
Straightener, No. 4 H. & J. 18" beams.
Swaging mchs., No. 5-A Standard.
Testing machines, 4000 & 100,000-lb.
Testing mche., 100,000 lb. Olsen, m.d.
Tumbling barrel, 18"x36", b. d.
Upsetters, 1" to 6".
Welders, spot and butt.

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Wachs-Gregg & Co.,

Telephone: Randolph 1822 - 117 N. Jefferson St., Chicago

Boring machine, Giddings & Lewis No. 32, with a. c. motor.
Boring mill, Bullard 60".
Drill, Cincinnati Bickford 3' radial,
Drill, W. E. gang 6' radial.
Drill, Foote-Burt 24" heavy duty.
Drill, Harrington, 61 B, multiple.
Drill, Woodward & Rogers 6-spdl.
Drill, Pratt & Whitney No. 12 mult.
Fox lathe, Warner & Swasey No. 3.
Grinders, Nos. 4 and 6 Badger disc.
Grinder, No. 6 Modern internal.
Hammer, Mayer 100 lb. upright.
Lathe, Bradford 32"x18'.
Lathes, Rockford 15"x6'.
Lathe, Whitcomb-Blaisdell 18"x8'.
Milling machine, Cinn. No. 2 univ.
Milling mche., Rockford No. 0 plain
Planer, Belmer, 48"x48"x12', 3 hds.
Press, Niagara No. 5½ o. b. i.
Press, new Swaine No. 73 dbl. crank
Screw machine, Foster No. 4.
Shaper, Cincinnati 20"
Turret lathe, Pratt & Whitney 6"x14"
Turret lathe, Warner & Swasey No. 2 A, chucking machine.

FOR SALE BY

McDonald Machinery Co., 1535 N. Broadway, St. Louis, Mo.

Air compressors, Curtis 10x10 m. d., double cyl.; DeVilbiss 8x6.
Bolt machines, Landis & Acme 1 hd., 1¾" capacity.
Boring mill, Lucas No. 21 horizontal, 24"; Woods 3".
Boring mills, 4 Bullard 42" low price.
Brake, D. & K. 6' 10 gauge, power.
Cut-off mchs., 4 Davis 6" capacity.
Drill, Moline 4-spindle and 32-spdle.
Drill, Foote-Burt 4-sp. No. 2 gang.
Drill presses, Allen and Sipp 4-spdl., h. s., b. b., power feed to spindles.
Drill, Cinti-Birk 3½ s.p.g. box rad.
Drills, Leland-G 1-sp. h.s., b.b. floor.
Drills, Sipp 1-spindle, h. s., b. b., H. & W. 2 spdl.; H. & W. 6-spdl.
Drills, 20", 24", 26 & 28" b. g., & tap.
Gear hobber, G. & E. 24".
Grinders, B. & S. No. 2 universal; B. & S. No. 2 surface, complete.
Grinders, modern internal; Blount 30", wet (3), Heald 8" mag. ck.; Landis No. 1½ int., Landis 16"x42".
Grinders, St. Louis No. 9; Modern 12"x60" safety, 10 h. p. d. c.
Grinder, Pratt & Whitney vert. surf.
Grinder, Cin. No. 1½ univ. tool & c.
Hack saws, 6x6 Racine & Peerless hi speed; Racine 8x8 h. s.
Keyseater, Mitts & Merrill No. 2.
Lathes, Hendey 14"x6' q. c. g. yoke head; Davis 22"x10' q. c. g.; Sidney 16"x6' q. c. g. LeBlond 16"x8' Whitcomb-B. 22"x8' q. c. g. Monarch 16"x8'; C. & J. 15"x8'; Superior 18"x8'; L. & S. & Cinti. 16"x6', q. c. g.; American 22"x10' q.c.g. geared hd.; American 16"x6' q. c. g.; Lehmann 18"x7' q. c. g.; 40 assorted sizes, quick and loose change gear.
Lathes, Greaves-Klusman 24"x16' standard change with chuck.
Milling machines, Van Norman No. 2 duplex; Ohio No. 20 plain. LeBlond No. 3-H; Brown & S. No. 3; B. & S. No. 3-B pl., s. p.d.; American No. 1½; Kempsmith No. 1 Cincinnati No 3; Becker No. 25 all plain; Kemp No. 3; Cin. & B. & S. No. 1½; Ohio No. 29 all universal; B. & S. No. 5 vertical; Cincinnati 18" mfg; Becker No. 2-H vertical.
Milling and drilling mchs., Knight No. 1½ with power feed, vertical.
Nibbling machine, Gray 30", m. d., ½" cap.
Pipe machine, Curtis 3", motor dr.; Merrill 6"; Curtis 2½" to 12" m. d.
Planers, Gray 28"x28"x6' 1 head; Cincinnati 36"x36"x18' 2 heads; Pond, 36"x36"x12' table, 18' bed, 2 heads; Flather 24"x24"x8'; Gray 24"x24"x6', 1 head.
Punch presses, 4-Consolidated No. 2; Federal Nos. 1, 2, 3 and 4; Bliss No. 19; 2 horn presses; Swaine No. 37; Sidney No. 2, o. b. i.
Screw machine, Cleveland 2½" auto.; P. & W. No. 2½ hand; Foster No. 3 hand; Woods No. 2 tilted turret, Milholland No. 4 b.g. hand; Foster No. 7 hand b. g.; W & S. No. 1.
Slotters, P & W. 6"; N.B P. 10" vert.
Shapers, S. M. 16"; 24"; Queen City 24" back geared; G. & E. 16", b.g.; Niles traveling head; Milwaukee 16" b.g.; Walcott 20" b.g.; S. & M. 24" and 26" b. g.; Ohio 16", Cincinnati 20", b.g.; Rhodes 7"; Queen City 16" b. g.; Potter & J. 16".
Shears, 60" thrt. rotary slitting, (2).
Square shears, Niagara 62" power, m. d. 18-ga.; Ohio 8' power 16 gauge.
Thread miller, Lees-Bradner No. 3E.
Turret lathes, Warner & S. No. 2A.

FOR SALE BY

Marr-Galbreath Machinery Co., 58 Water St., Pittsburgh, Pa.

Air comp., 4½"x4½" & 6"x6" Curtis.
Bender & straight'r, cap. 12" beams.
Blower, No. 40 Connersville.
Blowers, Root No. ¾, 500 c. p. m.
Bolt cutter, 1" Wells Bros., m. d.
Boring mill, 30" King; and Bullard.
Boring mill, 2½" bar W. & S. horiz.
Brake or press, 10' Keene toggle capacity 16 gauge.
Brake, 8'x12 ga. power, Chicago.
Brakes, hand, 10', for 18 ga.
Broaching mch., No. 3 LaP. Hudson.
Bulldozer, No. 2 W.-W., tric. clutch.
Chuck, Heald magnetic 14½x40".
Chuck, Walker magnetic, 6" diam.
Cold header, ⅜" W-F., solid die.
Cold saws, Nos. 11½ and 12 Higley.
Crimping roll, 6½' Robinson, 16 ga.
Drill, 24" Rockford, g. f. taper att.
Drill, radial, 5' Western, g.b., m. d.
Drill, sensitive radial, 3' Amer. t. a.
Driller, Detroit 5-spindle semi-auto., Exhauster, with 1½ h. p. motor, 1/60.
Folders, bench 30" hand (4).
Forging mach., 1½" Ajax, steel bed.
Forging mche., 3½" Ajax, steel bed.
Forging mche., 3" Acme steel bed.
Furnace, rotary annealing, 12"x8'.
Furnaces, oil tempering, 10"x10"x10".
Gear hobber 12" S-S "TRO".
Gear and pinion cutter, No. 3 Sloan.
Gear speed reducer, 3 h. p. 50:1.
Grinder, No. 1½ Landis universal.
Grinder, No. 1 LaSalle surface.
Grinder, 18-D. Rowbottom, o.h.b.b.
Grinder, No. 17 Besly 30" double.
Hack saw, 6x6" Marvel, motor drive.
Hack saw, 6"x6", 12"x12" Racine.
Hack saw, Peerless, 6" univ. shaping
Ham., 250 lb. L. Giant belt pwr. new.
Ham., 400 lb. No. 10 Beaud., pwr. b.d.
Hammer, 800 lb. Erie stm. forg., s.f.
Hammer, 1000 lb Chbg., steam drop.
Hoists, chain, 1 to 8-tons capacity.
Keyseaters, No. 00 & No. 2 Baker.
Keyway cutter, 24" Morton, cap. 24".
Lathe, jewelers, with collets.
Lathe, 12"x8' Reed-Prentice geared head, belted m. d.
Lathe, 14"x6' Hendey q. c. g., pan,
Lathe, 15"x6' South Bend, chuck.
Lathe, 13"x7' S. Bend, p c.g.ck., c/s.
Lathe, 16"x8' S. Bend, 2 cks. & c/s.
Lathe, 16"x10' L & S. geared head motor leg.
Lathe, 18"x8' L & S. sel. hd. m.d.t.a.
Lathe, 20"x10' Hendey, belted m. d.
Lathe, 21"x8' LeBlond, q. c. g., d. b. g., 1½" h. s., chuck.
Lathe, 20"x10' Hendey, tie bar.
Lathe, 16"x10' Prentice, g.h, q.c.g., 1½" h. s., t. a., chuck.
Lathe, 26"x12' 10" Wickes, semi-q. c. g.; h. s., chuck. c/s.
Miller, vertical, No. 3 Becker, cone.
Miller, No. 28 Ohio pl. auto. feeds.
Miller, No. 3 LeBlond, plain.
Motors, ½, 3, 5, 7½ h. p. 3/60/220 v.
Motor, 5 h. p. 500 v. d. c., 1500 rev.
Motor, 10 h. p. a. c., 3/60/220/1740
Motor, 20 h.p. 220 v.d.c., 350/1050 rev.
Motor, 25 h p. slip rg., 3/60/220/1160.
Planer, 24"x24"x8' Gray, l-head.
Planer, 30"x10' W. & P., 2-heads.
Press, No. 3A Bliss, adj. table, m.d.
Press, No. 14 Toledo horn.
Press, F-162 Ferracute, foot power.
Presses, No. 3 Bliss, punch type.
Presses, o.b.i., No. 1 Toledo.
Press, Nos. 19, 21, 22 Bliss o. b. i.
Pr., o.b.i. No. 1 VKV; No. 1 Sidney.
Press, o.b.i No. 3 Niagara, 1½" str.
Press, C-3 Ferracute, o. b i., plain.
Presses, foot, No. 87 Bliss, pendulum.
Press, No. 6 Perkins, s. s., 4000 lbs.
Presses, No. 87 Niagara, screw.
Punch, s. e., Badger, 7" thrt., ⅝"x⅝".
Punch, s. e., Badger, 8" thrt., ⅝"x⅝".
Punch, No. 13 Niagara hand power, 10" tht; wt. 140 lbs.
Punch, Rapid, 26" tht., 1"x⅜", m. d.
Punch & stake riveter, No. 123-C. Toledo boilermakers.
Riveter, Grant No. 101, 5/16" cap., for motor drive.
Riveters, 1-AA, 3-A, 5½ B, hi speed.
Screw machine, No. 0G B. & S. automatic, belted motor drive,
Shaper, 7" Rhodes, vert. ram. m. d.
Shaper, 20" & 16", Cin., b. g., crank.
Shaper, 25" S & M., b.g., crk., A-1.
Shear, 42"x⅜" Niagara, 18" gap.
Shears, ⅜" & ⅜" Lennox, throatless.
Shear, rotary, 12" thrt., cap. 10 ga.
Shear, rotary, 36" throat cap. 7/32".
Shear, rotary, 16 ga., Yoder, 24" thr.
Shear, squaring, 8'x14 ga. power.
Shear, squaring, 60"x14 ga. Canton.
Shear, 10'x16 ga. Ohl power.
Shear, squaring, 30"x18 ga., F. & P.
Slotter, 18" Dill, for motor drive.
Spin. lathe, No. 6 Bliss, c.r., tailstock,
Thread, mch., ⅝" Geometric, s.s.fl.st.
Turret lathe, 26"x7½" h. s., Libby.

USED AND REBUILT MACHINERY

FOR SALE BY

Randle Machinery Co., - 1733 Powers St., Cincinnati, Ohio

Air compressors, all sizes and types.
Arbor press, Nos. 2 and 4 Greenerd.
Beading machine, Quickwork univ.
Beading mche., Pexto No. 624, m.d.
Bending rolls, 12'x1" Niles, m. d.
Bending rolls, 16'x1½" Wickes.
Bending rolls, Pexto No. 418.
Bending rolls, Pexto No. 381.
Bolt cutter, 1½" Landis, cone drive.
Boring mills, 14' Betts.
Boring mill, 42" Bullard & Gisholt.
Brake, 8'x14 ga. Chicago hand pwr.
Brake, 6'x18 ga. Chicago hand pwr.
Brake, 8' & 10'x10 ga. Ohl press.
Brake, Pexto 30" hand power box.
Drills, all sizes and types.
Gas engine, 60 hp Reeves 3 cyl. vert.
Grinder, No. 14—20" Gardner.
Keyseaters, Davis & Catlin.
Lathe, 12'x4' bed Sebastian, m. d.
Lathe, 16"x8' Sebastian, m. d.
Lathe, 16"x6' Monarch l. c.
Milling machine, No. 2 LeBlond universal, motor drive.
Pipe bender, Pedrick & Smith.
Pipe mche., 1½" Landis, belt drive.
Press, No. 5 Bliss d. c.
Press, No. 91B Toledo d. c.
Press, No. 3 Amer. openback, m. d.
Press, Nos. 4M & 7M Amer., m. d.
Press, No 1 American horning, m.d.
Press, Excelsior arch, 54".
Saw, 6" Economy, motor drive.
Shapers, all sizes.
Shear, Nos. 662 & 848 Niagara, gap.
Shear, 10'x14 ga. Stoll, m. d.
Shear, No. 272 Robinson, belt drive.
Shear, No. 3 L. & A., m.d., 10'x3/16".
Shear, Southwark rotary, No. 8 ga.
Shear, No. 25U Buffalo, m. d.
Shear, Pexto No. 300 circular.
Shear, No 38 Marshall't'n bevel, m.d.
Welders, 100 to 300 amps.
Wheel press, 100 to 300 tons.
Wheel lathe, 84" Niles, m. d.

Also many other bargains. Send us your inquiries.

FOR SALE BY

Norton-Broadway Mchy. Co., Sixth & Baymiller Sts., Cincinnati, O.

BORING MILLS.

24" and 36" Bullard New Era.
36" and 51" Niles, 2 heads.
2½" Cleveland horiz., rotary table.

DRILLS AND RADIALS

6' American, gear box, sgl. pulley.
6' American tr. purp., encl. head.
4' and 4½' Morris, single pulley.
No. 5 Fox multiple spindle, 32"x45".
No. 310 Baker heavy duty.

LATHES.

60"x16' New Haven.
36"x22' New Haven, blocks to 44".
30"x14' Prentice q. c.
28"x48"x10' McCabe double spindle.
21"x10' LeBlond, q. c.
19"x12' Sidney, q. c.
18"x8' Mueller, q. c.
20"x10' Hendey, q. c.
17"x8' LeBlond, q. c.
14"x6' LeBlond.
13"x5½' Willard, geared head.
14"x6' Bradford, q. c.

MILLING MACHINES.

No. 2 Cincinnati univ., cone.
No. 2 Cinti. vertical, single pulley.
No. 4 Cinti. vertical, single pulley.
No. 3 Cincinnati plain single pulley.
No. 5 Becker-Brainard, cone.
No. 4 Brown & Sharpe plain, late.

PLANERS AND SHAPERS.

26"x28"x10' Gray, 1 head.
24"x24"x8' Putnam, 1 head.
30"x30"x8' American, $275.
36"x12' D. & H. openside, 3 heads.
48"x10' Belmer, 4 heads.
36"x16' Gray, 2 heads, fact'y rebuilt.
32"x20' American, 2 heads, $350.
34" Gould & Eberhardt, b. g.
24" Potter & Johnston, b. g.
16" Gould & Eberhardt, b. g.
16" Smith & Mills, b. g.

MISCELLANEOUS.

Automatic, No. 2 Brown & Sharpe.
Grinders, Gardner disc, (4).
Grinder, B. & S., planer type.
Grinder, No. 1½ Cinti. tool & cutter.
Grinder, Reed surface.
Pipe machines, 4", 6" and 12".
Presses, No. 152 Toledo dbl. crank, 13,000 lbs.
Presses, 25 assorted, all sizes.
Shear, 8' Bertsch power gap, 14 ga.
Shear, 52" Niagara pwr., No. 10 ga.
Slotter, 20" Dill, motor drive.
Turret lathes, 6" Gisholt, motor dr.
Welders, spot, No. 5 Toledo & Thompson.
Lot steel lockers, chain blocks, hack saws.

FOR SALE BY

B. L. Saltzman - 524-26 W. Van Buren Street, Chicago, Ill.

LATHES

17x8 LeBlond, q. c. g.
18x8 Bradford h. d., act. swing 20½".
18x6 Fox, for brass work.
21" Gisholt, turret.
J. & L. turret, 1 & 2-spindles.
Lo-Swing 7x36 for crank shafts.

DRILLS

Moline Hole Hog, 6-spindles.
16" Pilton, 3-spindles.
20" Barnes, 1 & 2-spindles.
32" Hamilton.
No. 216 Baker 1½" cap.
30" Henry & Wright, h. s.

PRESSES

No. 3 Waterbury-Farrell 12x13½. bolster, wire feed rolls.
No. 39 Bliss horn, 2" stroke.
No. 100 Crosby, perm. incl.
No. 20-B Bliss, o. b. i., 2" stroke.
No. 87 Niagara screw press.
Excelsior No. 10 kick press.

MISCELLANEOUS

Air compressor, multi-stage centrifugal 350 cu. ft. cap. direct conn. to 4 h. p. motor.
Belting, pulleys, hangers, etc.
Brake, power, 8', 12 ga.
Grinder, No. 3 Modern univ., 12x36.
Shear, 10' sq., 16 ga., motor att.
Shear, 8', 20" gap, 10 ga., power.
Shear, 42" power squaring, 14 ga.
Spray painting outfit on hand truck, for 2 guns.

60 h. p. G. E. slip-ring motors, 900 r. p. m., also induction motors 20, 15, 10, 7½, 5, 3, 2 and 1 h. p., all speeds.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St., St. Louis, Mo.

BOLT AND PIPE MACHINES.

1½" Landis double head.
2" Landis double head.
1½" Merriman.
1½" to 6" Jarecki.
2½" to 8" Williams.

DRILLS.

3' American, triple purpose radial.
14" Mason high speed sensitive.
20" Champion.
22" Barnes back geared.
25" Barnes back geared.
1-spindle Avey.
2-spindle Allen.
3-spindle Avey.

GRINDERS.

Wells Bros. universal.
12"x60" Landis universal.

LATHES.

14"x10' Lodge & Shipley, q. c. g.
18"x8' Hendey, motor driven.
20"x10' Bradford.
24"x10' LeBlond.
30"x15' Lodge & Shipley, q. c. g.
24"x14' Whitcomb-Blaisdell, motor driven.
36"x15' American.

MILLERS.

No. 1 U. S. hand.
No. 2 LeBlond universal.
No. 2 Ohio single pulley drive.
No. 3 Rockford hand.
No. 3 Brown & Sharpe universal.
No. 5-B Brown & Sharpe.

PRESSES

No. 1½ Bliss toggle.
No. 3 Toledo.
Stiles & Parker drawing.
No. 24 Toledo cam drawing.
No. 722 Toledo cam drawing.
No. 37 Niagara straight back.

SCREW AND TURRET MACHINES.

No. 2 Warner & Swasey hollow hex.
No. 3-A Warner & Swasey.
3"x36" Jones & Lamson.

SHAPERS AND PLANERS.

16" Smith & Mills shaper.
32" Cincinnati shaper.
36"x36"x12' Cincinnati planer.

MISCELLANEOUS.

Bar shear, 5"x¼".
Boring mill, 36" Gisholt.
Hammer, 60 lb. Bradley helve.
Hammer, 250 lb. Little Giant.
Hammer, 600-lb. steam.
Punch, No. 14 W. W., 12" throat.
Saw, No. 17 Higley cold.
Tapper, auto., Rickert & Schafer.

FOR SALE BY

Brandes Machinery Co., - - 1900 Euclid Bldg. Cleveland, Ohio

Drill, Minster 3" m. d. 90% new.
Drill, 2½' Cin.-Bick. s. p. t. a.
Grinder, No. 50 Heald. internal s.p.
Grinder, 6"x18" Fitchburg plain.
Lathe, 24"x12' B. & E., q. c. d. b. g.
Lathe, 27"x16' Prentice.
Mill, 54" Bullard Maxi. ser. 11,000.
Pipe threader, 12" Bignall & Keeler.
Roll, 72" Peck, Stow & Wilcox.
Shaper, 21" Smith & Mills.
Shear, 20A Quickwork 12 ga.
Welder, 35 k. v. a. Gibbs.

FOR SALE BY

Mid-West Machine Tool & Supply Co., Davenport, Iowa

Automatics, Nos. 0 & 00 B. & S.
Grinder, 10"x36" Norton.
Grinder, No. 10 B. & S. ext.
Grinder, No. 22 Heald rotary surf.
Hobbers, Nos. 3, 12-B & C.
Lathe, No. 9 LeBlond multi-cut.
Millers, Nos. 1 & 2 Brown & Sharpe.
Miller, No. 13-B Brown & S. prod.
Radials, 3' Cincinnati Bickford.
Turret lathe, No. 6 Warner & S.

Partial list; send us your inquiries.

FOR SALE BY

Midwest Equipment Co., - 628 W. Lake St., Chicago, Ill.

Drill, Avey No. 2, 4-sp., b. b., 15" overhang.
Drill, Avey No. 1, 1-sp., b.b., bench.
Drill, Allen 2-spindle, b. b.
Gear hobber, Barber-Coleman No. 3.
Gear hobber, Adams-Farwell No. 2.
Grinder, 6x32 Norton cylindrical.
Grinder, Badger No. 6 disc, b. b.
Planer, Niles 24x24x8'.
Shear, Excelsior No. 52 gap sq., 50".
Welder, 200 amp. Wilson arc, m. d.
Welder, 200 amp. dual arc, m. d.
Welders, 5-10 k. w. spot, new.

Milling machines, shapers, wood working machines, motors and air compressors. Send us your inquiries.

FOR SALE BY

The Jones Machine Tool Co., Front & Pike Sts., Cincinnati, Ohio

Bor. mill, No. 32 G. & L. hor., 3" bar.
Car wheel borer, 36" Niles.
Gear cutter, No. 13 Brown & Sharpe.
Gear hobber, No. 12 Barber Colman.
Grinder, surf., No. 1 Diamond m. d.
Lathe, 16"x10' Hendey q. c. tie bar.
Lathe, 79" dbl. head, driving wheel.
Lathe, turret, Nos. 2A & 3A W. & S.
Miller, No. 3 Cinti. high pwr., s. p.
Miller, No. 2 Cinti high power s. p.
Miller, No. 2-M Cin., s. p. d. plain.
Press, 15 ton Lucas forcing.
Radial, 5' American enclosed head.
Radial, 3' Bickford s. p. gear box.
Shear, 10'—14 gauge.
Wheel press, 150 ton hydraulic.

Our warehouse is full of bargains—Send for our list.

FOR SALE BY

M. A. Wertman Machinery Co., 427 Penton Bldg., Cleveland, Ohio

Automatic, B. & S. No. 00G motor in base, nearly new, late machine.
Brake, Robinson 8' 16 gauge, good as new condition.
Gang slitter, Yoder G-36" lot of cutters and spacing collars.
Header, Manville No. 2 s. d. d. s., excellent condition. (2).
Lathe, Rivett No. 505N lot of collets and equipment, fine condition.
Lathe, Cincinnati 16"x8' q. c. g. good condition, low price.
Milling machine, Kempsmith No. 5 plain Maximiller, latest type.
Shear, Cleveland double angle 6x6x½" m. d.
Tapper, Rickert-Shafer 6" column type.
Thread roller, No. 20 Waterbury-Farrell hopper feed (2).
Turret lathe, Bardons & Oliver, No. 2 back geared, power feed.

USED AND REBUILT MACHINERY

FOR SALE BY

Strafer Machinery Company,

14th and Provost St., - - - Jersey City, N. J.

BORING MILLS

100" Sellers s. p. d. rapid traverse.	72" Sellers rapid traverse, m. d.
96" Cincinnati s. p. d. rapid traverse.	51" N.-B.-P. single pulley drive.

GEAR CUTTERS

No. 6 Cincinnati 60"x20" m. d.	No. 5A. Lees-Bradner a. c., m. d.

GRINDERS.

16"x52" Landis self-contained.	6"x32" Norton, overhead counter.
16"x48" Landis crankshaft.	No. 8 Badger disc, 30" wheel.

KEYSEATERS.

No. 5 Mitts & Merrill belt drive.	No. 3 Mitts & Merrill 16" stroke.

LATHES.

84"x40' Putnam modern.	24"x18' Prentice g. h.
42"x50' Pond cone type.	42"x14' Bridgeford geared head.
42"—70"x16' Fay & Scott slide gap.	24"x12' Lodge & Shipley.
42"x36' Niles t. g. belt drive.	21" Gisholt turret lathe.

PLANERS.

48"x48"x16' Pond 4 heads, b. d.	30"x30"x14' Whitcomb, 2-heads.
36" D. & H. open side 1 head.	

PRESSES.

400 ton W. S. hydraulic 73"x20'.	Ferracute s. r. g. 103 geared.
No. 3½ Bliss double crank, 44".	No. 87 Zeh & Hahneman grd. arch.
No. 4½ Bliss double crank, 32".	S-134 Ferracute 52" bet. uprights.

MISCELLANEOUS.

Beading machine, Bliss.	Compressor, I.-R. 8"x6" horiz. m.d.
Boring bars, portable, 4"x8'.	Drill, Rockford right angle horiz.
Caterpillar ditcher, B. & G. 24"x8'.	Pipe machine, 6" Saunders with dies.
Chuck jaws set for boring mill.	Wire straightener, core, to 5/16".

FOR SALE BY

Brownell Machinery Co., - 150 Pine St., Providence, R. I.

BORING MILLS.

42" Bullard New Era vertical turret lathe 3-jaw chuck table thread cutting attachment.

36" Bullard New Era vertical turret lathe, 4-jaw chuck table, cutting lubricant system.

DRILLS.

3' Cincinnati-Bickford.	23" Snyder stationary head.
3' Prentice radial.	4-spindle Barnes p. f.
28" Snyder sliding head.	

GEAR CUTTERS AND GRINDERS.

No. 3 Brown & S., spur gear 26".	20" Blount wet tool.
No. 13 Brown & S., spur & bevel.	No. 6 Diamond disc, 18".
No. 2 Brown & Sharpe surface.	Grand Rapids twist drill 2½".
No. 13 B & S. universal & tool.	

LATHES.

24"x27' Fitchburg.	13"x 5' Blount speed.
30"x20' Fitchburg.	

MILLING MACHINES

Model "AB" Becker vertical.	No. 1 Brown & Sharpe plain.
No. 1 Kempsmith universal.	No. 0 Brown & Sharpe plain.
No. 13-B B. & S. manufacturing.	

SCREW MACHINES & TURRET LATHES.

16" Warner & Swasey, g. f. h. 1".	3"x36" Jones & Lamson flat turret.
No. 4 W. & S. grd. friction hd., 1½"	

MISCELLANEOUS.

Hammering mch., No. 2 Langelier.	Screw press, No. 3 Standard.
Hammer, pwr forg., 80 lbs. Bradley.	Shaper, 16" Sellew tool room.
Planer, 20"x20"x4' Fitchburg.	Tapping machine, No. 1 Garvin vert.
Punch press, No. 2 Manville.	

FOR SALE BY

Nelson Machinery Co., - - 119 N. Pearl St., Green Bay, Wis.

Gear cutter, Gould & Eberhardt 36x8, spur gears only.
Lathe, 27"x16' Prentice high speed, heavy duty, quick change, single pulley drive, 2½" hole through spindle.
2—Generators, 75 and 100 k. v. a. Elec. Machy. Co. 3 ph., 60 cy. direct connected to 12x18 and 14x18 engines.

FOR SALE BY

General Machinery Corporation, 140 Federal St., Boston, Mass.

Drill, Allen sens. rd. and sq. tables.
Drill, Sibley 24" sl. hd., b. g., p. f.
Grinder, Landis 6x18 plain, c. s.
Lathe, Monarch 14"x6' q. c. g.
Lathe, Stark No. 4 bench, c. s., c. r.
Lathe, Worcester 11"x5' com. rest.
Miller, No. 8 (Lincoln).
Press, Niagara No. 2 flywheel.
Shaper, Stockbridge 16" plain crank.
Shaper, Potter & Johnston 15" univ.

FOR SALE BY

A. M. Stoehr Machinery Co. 106 S. Jefferson St., Chicago, Ill.

Balancing mch., Gisholt precision.
Baling press, scrap metal, belt dr.
Bullard 8" Multaumatic, like new.
Drill, No. 216 Becker heavy duty.
Pipe mche., Saunders cap. 4" to 12".
Polishing machine, Centerless, 3".
Rolls, 4'x½" & 8"x5/16" pyr. type.
Saw, No. 3½ Ryerson friction.
Shears, 52"x14 ga. & 10'x10 ga.
Slitter, Yoder 36", 16 ga., m. d.

FOR SALE BY

The Reeve-Fritts Co., 558-560 W. Washington Blvd., Chicago, Ill.

Drill, 6-spdl. H. & W. b. b.....$250.
Drill, 25" Superior s. h. b. g..... 135.
Gear hobber, No. 1 Adams..... 150.
Grinder, disc, 20 Ransom..... 140.
Lathe, 10x5 Pratt & Whitney... 135.
Lathe, 14x6 Hendey, q. c. g.....$375.
Lathe, 14x8 Champion, q. c. g... 350.
Lathe, 18x6 Ryerson q. c. g..... 300.
Shaper, Smith & Mills b. g..... 325.
Shaper, 24" Rockford..... 475.

FOR SALE BY

Surplus Material & Machinery Co.
8735 Kercheval Ave., Detroit, Mich.

Milling Machines—exceptional quality.

2B Milwaukee.
2B Milwaukee.
2A Milwaukee.
1½ B. & S. universal.
2 B & S. universal.
36x36x8 Cincinnati planer.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 So. Clinton St., Chicago, Ill.

Drills, 1, 2, 3, 4, 6-sp. Leland-Gifford Allen, Henry & Wright hi-speed.
Grinder, No. 11 Brown & Sharpe.
Grinder, 4"x18" Norton.
Grinder, No. 60 Heald cylinder.
Grinder, No. 6 Heald internal.
Lathe, 24"x12' Bradford, q. c. g.
Lathe, 24"x12' Sidney, q. c. g.
Lathes, 12", 14", 16" Hendey taper, draw collets, relieving attachment.
Maxi-miller, No. 2 Kempsmith, m. d.
Miller, No. 3 hvy. Brown & Sharpe.
Miller, No. 4 Cincinnati
Pipe mche., No. 4 Williams, m. d.
Press, No. 3½A Bliss toggle drawing.
Presses, No. 5 double action, cam.
Presses, No. 5 McDonald; No. 4 Fed.
Presses, No. 2 Cons.; Nos. 0 and 00 bench.
Screw mchs., Nos. 2, 3, 4, 6 W. & S.; Brown & Sharpe.
Shapers, 32" Columbia, sgl. pulley.

Write for catalogue.

USED AND REBUILT MACHINERY

FOR SALE BY

Miles Machinery Co.. • • Saginaw, W. S. Mich.

Automatic, 1¼" Gridley.
Bulldozer, Nos. 2 & 7 W. & W.
Compressor, 440' Ing.-Rand.
Drill, upright, 24" Cincinnati.
Drills, radial 3' & 4' American.
Gear hobbers, 18" & 24" G. & E.
Gear shaper, No. 6 Fellows.
Grinders, 6"x32" to 14"x72" Norton.
Grinder, surface, No 3 Diamond.
Grinder, crank, 16"x48" Landis.
Grinder, universal No. 3 B. & S.
Grinders, t. & c., Nos. 1 & 1½ Cin.
Hammers, 100 & 150 lb. Bradley.
Hammer, 600 lb. N. B. P. steam.
Keyseater, Nos. 0, 2 & 4 M. & M.
Lathe, 14"x6' Hendey grd. hd.
Lathe, 16"x8' LeBlond.
Lathe, 18"x8' Hendey toolroom.
Lathe, 20"x8' Lodge & Shipley.
Lathe, 50"x16' Pittsburgh q. c. g.
Lathes, turret, 2A & 2A W. & S.
Lathe, turret, 24" & 36" Bullard.
Mill, boring 60" Colburn.
Mill, horiz. 4½" bar Defiance.
Miller, 1½ AS, 2B & 3B Milwaukee.
Planer, 48"x48"x10' Liberty.
Press, 1000 ton Bliss coining.
Shapers, 16", 20" & 24" G. & E.

FOR SALE BY

Davis Machinery Exchange, 1-3-5 So. St. Clair St., Toledo, Ohio

Bolt threader, ¾" Landis dbl. head.
Boring mill, 24" Bullard vertical, new era head.
Drill, 20" Barnes, 4-spindle.
Drill, No. 310 Baker hvy. duty, (2).
Drill, 3½' Carlton radial, g. b., s. p.d.
Drill, 3' Bickford radial, g.b., s.p.d.
Drill, 3' gang radial, tapping attachment, universal table.
Drill, 2-spindle Allen, h. s. b. b.
Drill, Henry & Wright, h. s. b. b.
Drill, Sipp h. s. b. b. (2).
Drill, No. 2 Avey, h. s. b. b.
Drill, 2-spindle, L. & G. h. s. b. b.
Drill, Pierle, h. s. b. b.
Drill, 24" Cincinnati s. h., b. g., p.f.
Drill, 16" Kern hi-speed.
Drill, 6-sp. Nat. Acme horizontal.
Drill, 6-spdl. H. & W., h. s., b. b.
Grinder, No. 2 Gardner disc, comp.
Grinder, No. 4 Gardner disc comp.
Grinder, No. 4 Gardner disc, 15 h. p. motor drive.
Grinder, No. 4 Oliver drill pointer.
Grinder, No. 14 Brown & S., plain.
Grinder, 10"x36" Landis pl. self-con.
Grinder, No 60 Heald cylinder.
Grinder, No. 2 Oakley univ., comp.
Groover, 42" Toledo power.
Hack saws, 6x6 Racine & Peerless.
Hammer, 8" Schuster riveting.
Keyseater, No. 0 Mitts & Merrill.
Keyseater, No 0 Baker.
Keyseater, No.3-A Mitts & Merrill.
Lathe, 19"x10" Sidney q. c. g.
Lathes, 14"x6', 16"x6', 18"x8' Hendey q.c.g., taper and collet attachment.
Lathe, 16"x6' Walcott q. c. g. t. att.
Lathe, 16"x8' South Bend, std. c. g.
Lathe, 16"x8' Oliver q. c. g , engine.
Lathe, engine, 18"x7' Lehmann, q. c. g., chuck.
Lathe, 18"x10' American q. c. g., taper and relieving attachments.
Lathe, 18"x8' American q. c. g.
Mill, No. 1 Kempsmith universal.
Mill, No. 2 LeBlond univ. index & vertical head. complete.
Mill, No. 1½ Becker-Brainard universal, complete.
Mill, No. 3 LeBlond, univ., comp.
Mills, No. 1½, No. 2 and No. 3 Cincinnati plain, all geared feeds.
Mill, No. 2 Kempsmith plain.
Mill, No. 0 Steptoe, p. f.
Mill, A. B. Becker vertical.
Mill, Model C. Becker vertical.
Mill, No. 3 B. & S. vertical, s. p. d.
Mill, No. 6 Whitney hand, (6).
Mill, No. 12 B. & S. production, (2).
Miller, No. 1 Toledo b. b. hand (2).
Milling and drilling machine, No. 1½ Knight.
Nibbler, metal No. 1 Campbell.
Oil groover, Fisher No. 1.
Press, arbor, No. 3A Atlas.
Press, No. 1 Toledo o. b. i. flywheel.
Press, No. 35 Swaine o. b.i. flywheel.
Press, No. 3 Bliss, s. b., flywheel.
Press, No. 4 Amer. Can type P.
Press, No. 8 Bliss, bench type (5).
Press, No. 81 Consolidated, bench.
Press, 40 ton Manhattan screw
Screw machine, No. 6 Warner & S.
Screw machine, No. 7 Foster.
Screw machine, No. 4 Foster.
Screw mche., ½" Cleveland Model A.
Screw mche., 1½" Cleveland Model A.
Shaper, 16" Whipp crank, s. g.
Shaper, 16" & 20" Cin. crank b. g.
Shaper, 16" & 20" Steptoe crank b.g.
Shaper, 20" Ohio crank, b. g.
Shaper, 24" Smith & M. crank. s.p.d.
Shaper, 24" Walcott crank, b. g.
Tappers, No. 1 & No. 2 X Garvin vertical (5).
Threader, 8" Geometric.
Welder, 50 k. w. Taylor spot, 440 v.

FOR SALE BY

The O'Brien Machinery Co., 113 N. Third St., Philadelphia, Pa.

Automatic, 1¾" Cone, 4-spindle.
Automatic, 2¼" F Gridley, 4-spdl.
Bending roll, 28' H & J. ⅜" cap.
Column facer, 14" Espen-Lucas.
Drill, 4' Cincinnati-Bickford, radial.
Hammer, 2000 lbs. Chambersburg.
Hammer, 1100 lb. N.-B.-P. sgl. fr.
Lathe, 36"—60"x32' McCabe, belt.
Lathe, 48"x16' Lodge & Shipley.
Miller, No. 3B Brown & S. plain.
Planer, 30"x30"x6' Detrick & H.
Punch and shear, 24" Southwark, arch. jaw, cap. ⅝"x¾".
Shaper, 24" Gould & Eberhardt.
Shear, 8' Covington squaring, gap, pattern, ¼" capacity.

FOR SALE BY

Severin Machinery Corporation, 30 Church St., New York, N. Y.

Bending roll, 14' Cleveland ¼".
Boring mill, Cincinnati 8' vertical.
Boring mill, Sellers, 102".
Boring mill, Bullard, 60".
Boring mill, King, 42", s. head.
Boring mill, hor. No. 31 Lucas, m.d.
Hammer, Beaudry, 250 lb.
Hammer, Beaudry, 50 lb.
Hammer, 5N Nazel.
Mill, horiz., Fosdick 3" bar.
Miller, No. 3B Brown & S., plain.
Miller, 32"x12' Ingersoll 4 heads.
Pipe machine, 2" Williams, new.
Pipe mche., 2½ to 8" Williams, new.
Planer openside, 36x36x10 D. & H.
Radial, 4' Western, new.
Roll, Hilles & Jones 16"16", 11/16".
Saw, Laidlaw metal.
Sand blast cabinet.
Scale, Howe track, 125 tons.
Shaper, 25" Smith & Mills, new.
Thread miller, 48" P. & W.

FOR SALE BY

Brown Machinery Co., - - 2323 N. 9th St., St. Louis, Mo.

Drills: 24", 26" and 32" Barnes and Rockford; 4-spindle Moline hole hog No. 66D.
Gear hobbers, G. & E. 12" and 24".
Grinders: No. 6 Besly dbl. spindle; No. 220 Badger auto. disk; 12x30" Modern, plain s. c. c. s.; No. 12 Brown & Sharpe, univ., tool, m.d.
Hammer: 40 lb. Bradley, helve; 50 lb. Mayer upright.
Lathes, 36"x12' Blaisdell; 26" x 12' Putnam, hvy. duty; 20"x12 Lodge & Shipley, q. c. g.; 18"x8' Prentice geared head; 16"x8' Lodge & Shipley q. c. g.; 16"x6' Monarch.
Millers: No. 2 Hendey-Norton, univ.; No. 3½ Fox; No. 4 Hendey Lincoln.
Press, No. 7 Zeh & Hahneman.
Threaders: ⅝" Geometric; National 1¼" double hd.; No. 734 Greenfield.

Write for prices: send us your inquiries for shop equipment and sheet metal working machinery. We have the stock.

FOR SALE BY

The E. L. Easley Machinery Co.

Telephone Randolph 9191 551 W. Washington Blvd., Chicago

Bolt cutter, ½ to 2½" Landis, Acme.
Bor. mill, 24" & 42" Bullard New Era
Drill, Avey, Allen, Leland-Gifford.
Grinder, No. 1 LeBlond universal.
Hammer, No. 5A High Speed rivet.
Hobber, Nos. 3 & 12 Barber-Colman
Lathe, 14"x8' American m. d.
Lathe, 20"x18' Sidney.
Lathe, 25"x12' Sidney.
Lathe, 33"x16' LeBlond, geared hd.
Miller, Nos. 2 & 3 Cincinnati plain.
Miller, No. 2 Ohio heavy universal.
Miller, No. 2½ B K. & T. vertical.
Pipe mche., 6" Landis, 6" E.C. & B.
Planer, 16' Niles plate.
Planer, 22"x22"x4' Whitcomb.
Planer, 36"x36"x14' Chandler.
Press brake, 10'-6" Ohl. 10 ga. cap.
Presses, No. 165-B Consolidated gd.
Presses, Nos. 19 and 21½ Bliss.
Presses, No. 5 Bliss-Consolid. o.b.i.
Radial, 2½' & 6' Am. 3' & 5' Cin-Bick
Saws, 8"x6" Peerless; No. 12B Higley.
Screw mchs., Nos. 5 & 6 Wood tilted
Screw mchs., No. 4 Warner & S.
Shapers, 20" S. & M., 24" G. & E.
Shapers, 32" Columbia.
Shear, 42" Stoll, 16 ga.
Shears, 62" Niagara 14 ga., m. d.
Turret lathe, No. 1-B Foster chuck.

FOR SALE BY

Taylor-Hall Welding Corporation, 99 Hope Ave., Worcester, Mass.

WELDERS

Taylor-Winfield motor drive 7½ k w. spot welder.
Taylor D—36-4, 40 k.w. spot welder.
Thomson 35 k. w. spot welder.
Taylor-Winfield 2 k. w. spot welder.
Thomson 7A auto. butt welder, cap. ½".
Toledo 8B butt welder, cap. ⅞".
Thomson No. 3 butt welder, cap. ⅝".
National 11-A butt welder, cap. 2".
Toledo No. 6 butt welder, cap. 1".
National 15-A butt welder, cap. 2½".
Thomson 2-C butt welder, cap. ¾".
Thomson 2-A auto. butt welder, capacity ⅝".
Federal 4-A butt welder, cap. ½".

New machine guarantee with every welder.

FOR SALE BY

E. L. Klauber Machinery Co., 320 South Third St., St. Louis, Mo.

LATHES.

9x14 Porter-Cable (3).
18"x 6' Rahn-Larmon
20"x 8' Monarch q. c. g.
22"x12' Lodge & Shipley q. c. g.
24"x10' Lodge & Shipley q. c. g.
30"x14' Bradford.

SCREW MACHINES AND TURRET LATHES.

No. 0 Brown & Sharpe automatic.
No. 0 Brown & S. semi-automatic.
No. 2½ Garvin p. f. t.
No. 2 Wood tilted turret.
No. 4 Wood tilted turret g. f. h.
No. 56 National-Acme 4-spindle.

MISCELLANEOUS.

Drill presses, 50 from 10" to 34".
Grinders, Heald 8" rotary.
Miller, No. 2 Cincinnati universal.
Planer, 20"x20"x4'.
Presses, Nos. 35, 33, 31 Swame.
Shaper, 16" Smith & Mills light.
Shaper, 20" G & E. high duty, b.g.
Spot welder, 25 k. w.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road, - - - N. S. Pittsburgh, Pa.

Automatics, No. 53 National-Acme.
Bolt cutters, ⅜", ½", 1-¼ single head.
Boring mill, 38" Gisholt, 2 heads.
Boring mill, 34" Colburn.
Boring mill, 36" Niles 2 heads.
Boring mill, hor., 2½" bar Cleveland
Car wheel borer, 42" Ridgeway.
Centering mche., Cadillac dbl. end.
Drill, Model "F" Turner turret.
Drill, No. 25 Foote-Burt hvy. duty.
Drill, No. 4 Colburn mfg., 4-spdls.
Drill, D-5 Colburn heavy duty.
Grinder, 12"x24" Modern plain.
Grinder, No. 14 Gardner disc.
Hammers, No. 2-A, h. d. Hi-Speed,
Hoists, electric, 1 & 2 ton, d.c. mtrs.
Lathe, 16"x6' Blount patternmakers.
Lathe, 18"x6' Springfield brass.
Lathe, 17"-37"x8' Fay & Scott gap.
Lathe, 27"x18' Reed, bargain.
Lathe, 48"x19' 8" Betts-Bridgeford.
Lathe, 30"x16' L. & S., q. c. g.
Lathe, 3"x36" J. & L. flat turret.
Lathe, 18" Libby turret, s. p. d.
Lathe, 21" Gisholt turret. (2).
Lathe, No. 5 Foster turret, grd. fr. hd.
Lathes, No. 4 W. & S tur., g. f. h.
Miller, No. 2A Milwaukee plain.
Miller, No. 2 Ohio plain, (2).
Miller, No. 3 Cincinnati plain, m.d.
Miller, 35"x24"x10' Newton slab.
Milling mch., No. 2 Cinti. univ., b.d.
Pipe machine, 6" Jarecki, m d.
Planer, 24"x24"x8' Powell, 1 head.
Planer, 30"x30"x8' Powell, 1 head.
Planer, 36"x36"x12' Cinti. 2 heads.
Presses, 3P Ferracute (2).
Press, No. 34-A Toledo Stiles.
Press, No. 39 Bliss horning.
Press, No. 21 Bliss. o. b. i.
Punch, No. 2 H. & J. horizontal m.d.
Punch, Wickes, 48" thrt., cap. 1½"x1".
Punch, Cleveland, 60" thrt., 2"x1".
Radial drill, 2' American.
Radial drill, 3' Cin-Bickford, g. b.
Radial drill, 4' Fosdick s. p. d., g. b.
Seamers, Bliss, Leffler & Max Ams.
Shaper, 20" Stockbridge b. g. crank.
Shapers, 24" & 32" G. & E., m.d., b.g.
Shear, Model 0-15 Unishear, m. d.,
Shear, bar, No. 14 W. & W. cap. 2" rd.
Shear, No. 0 H. & J. guillotine, b.d.
Shear, No. 103 Bliss circle.
Tapper, nut, ⅜" Acme semi-auto.
Turret lathe, 30" Gisholt, belt drive.

Our warehouse is full of bargains. What have you for sale?

FOR SALE BY

Foster Machinery Company, 2613 E. 73rd St., Cleveland, Ohio

Blue print machine, "Wickes".
Drill, No. 2 Bausch multi-spindle.
Draw bench, 12' Waterbury-Farrell.
Hoists, elect., 3, 5 & 10 ton Euclid.
Lathe, 20"x8½' American geared hd.
Lathe, 16"x10' Whitcomb & Blaisdell.
Lathe, 19"x12' LeBlond heavy duty.
Punch, EF Cleveland, 72" throat.
Riveter, 3-A High Speed.
Riveters, air, 30 ton & 50 ton Hanna.
Rotary planer, 50" Cleveland.
Shaper, 24" Gould & Eberhardt.
Shear, 12'x14 ga. Loy & Nawrath.
Turret lathe, No. 3-A Warner & Swasey univ., chucking equipt.
Welder, National butt, cap. 1".

FOR SALE BY

Brandt Machinery Company, 50 Penn Ave., Pittsburgh, Pa.

Blower, Spencer Turbo 2700 cu. ft.
Bolt cutter, 1½" Landis, single head.
Bolt cutter, 2" Landis, double head.
Bolt cutter, 3" Acme, Landis head.
Brake, 10'x¼" Chicago press type.
Brake, 10'x3/16" Cinc. press type.
Brake, 10'x¼" D. & K., leaf type.
Brake, 10'x½" D. & K., leaf type.
Bulldozers, Nos. 2, 24, 5, 26, 9.
Crane, No. 4 Canton floor.
Crane, 15 t., 43' 6" Northern.
Crane, 10 t., 57' Whiting, 220 v., d.c.
Crane, 5 t., 40' P. & H., 220 v., d. c.
Drill, 22" Snyder, b. g.
Forging mchs., 3", 4", 5", 7" Ajax.
Hammer, 60 lb. Bradley, helve.
Hammer, 1500 lb. Erie, sgl. frame.
Hoist, ½ ton Shepard a. c.
Lathe, 32"x20' Bridgeford, g.h., m.d.
Lathe, 21"x8' LeBlond, q.c.g., $500.
Lathe, 30"x20' L. & S., g. h.
Lathe, 48"x30' L. & S. 18 speed, g.h.
Lathe, 25"x16' Sidney, heavy duty.
Press, Nos. 57-58½-59 Toledo, tie rod.
Press, No. 93E-94E-96E Toledo, d.c.
Press, 92B Toledo, double crank.
Press, No. 14 Bliss, 170", d. cr. t. dr.
Roll, bending, 12'x½" H. & J., d. c.
Roll, bending, 12'x¾" Niles, d. c.
Roll, bending, 10'-12'-14'x1".
Roll, bending, 16'x1¼" Niles, initial.
Roll, bending, 25'x1¼" H. & J.
Shaper, 24" G & E., b. g.
Thread roll, No. 50 Waterbury ⅜".
Thread roll, No. 40 Waterbury ⅞".
Tur. lathe, No. 2 Acme univ. (bargain)

May we have your inquiries?

FOR SALE BY

Wigglesworth Machinery Company

170 Summer Street, - - - - Boston, Mass.

Blocks, Johansson blocks, like new.
Boring mill, No. 0 Giddings & Lewis, 3½" bar.
Boring mill, No. 35 Landis.
Boring mill, 144" Niles.
Boring mill, 96" Niles.
Boring mill, 84" Bullard.
Boring mill, 42" Gisholt.
Boring mill, 42" Bullard New Era.
Boring mill, 36" Bullard New Era.
Boring mill, 24" Bullard, rap. prod.
Drill, 4-spindle Avey.
Grinder, No. 7 Gardner, like new.
Grinder, No. 27 Blanchard, 60" chk.
Grinder, No. 3 Bryant semi-auto. hole.
Hammer, 2000 and 3000 lb. new board drop, ½ price.
Hammer, 6000 lb. Sellers, steam.
Lathes, Stark, Ames bench (4).
Lathe, 12"x5' Vernon.
Lathe, 14"x 6' Hendey, taper.
Miller, No. 1 B. & S. plain.
Miller, No. 2 Cincinnati universal.
Miller, No. 2 Brown & Sharpe.
Miller, No. 2B Kearney & T univ.
Miller, 24" Cincinnati automatic.
Miller, 60"x12' Newton planer type slab.
Miller, 24"x12' Ingersoll slab.
Planer, 84"x56"x16' Gray, 4 heads.
Planer, 72"x60"x16' Detrick & Harvey open side, like new.
Press, No. E-51 Ferracute knuckle joint.
Press, No. 3-A Bliss.
Press, No. 168½ Toledo toggle.
Radials, 3' American & Cincinnati-Bickford.
Screw machine, No. 2G B. & S.
Screw machine, 2½" Gridley, 4-spdl.
Shaper, 15" Potter & Johnston.
Shaper, 16" Gould & Eberhardt.
Shaper, 16" Steptoe.
Shaper, 20" Milwaukee.
Shaper, 24" Stockbridge.
Slotter, 36" Newton.

MISCELLANEOUS WANTS

WANTED BY

Machineshop Equipment Co., - - 170 Summer St., Boston, Mass.

Bending rolls, angle, Buffalo Forge Co. horizontal.
Cut-off machine, abrasive wheel.
Drill, Leland-Gifford ball bearing, 16", round column.
Lathe, No. 5 Stark.
Press, No. 4 Bliss Stiles, not geared.

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QUALITY TOOLS

Bench lathe. Ames 1', 19 collets.
Bench miller, Ames precision univ., dividing head, vise, collets.
(The above is one unit on bench with countershafts).
Drill, ⅛" L. & G. ball bearing, tapping attachment.
Drill, ⅜" Avey ball bearing, (4).
Drill, 1" Avey ball bearing, (5).
Drill, ⅞", 3-spindle Allen ball bearing, (2).
Drill, ⅞", 4-spindle Allen ball bearing.
Drill, 28" Cincinnati single head, back geared, power feed.
Gear hobber, No. 3 Barber-Colman.
Miller, No. 1½ Garvin plain.
Miller, No. 1½ Rockford plain, vertical head.
Miller, No. 3 Kempsmith plain.
Punch press, No. 18 Bliss o. b. i., (2).
Punch press, No. 3 Consolidated o. b. i.
Punch press, No. 3 Rockford.
Punch press, No. 4 Toledo o. b. i.
Riveter, No. 2 Grant motor drive, (3).
Riveter, No. 4-A High Speed.
Shaper, 12" Smith & Mills.
Shaper, 16" Milwaukee, back geared.
Shaper, 16" Steptoe, back geared.
Shaper, 24" Rockford, back geared.
200 other tools in stock, send us your inquiries.

GEORGE M. BERNSTEIN & CO.
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SHEET METAL TOOLS

Brake, 8' Chicago power bending 14 ga., 2 H. P. 220 volt, 3 phase, 60 cycle motor.
Press, No. 426½ Hamilton double crank 8" stroke, 42" bet. uprights, 10 HP 220 volt 3 phase 60 cycle motor.
Press, No. 78½ Bliss tie rod frame 12" stroke 36" between uprights.
Press, No. 3 Consolidated open back inclinable 3" stroke.
Press, No. 2 Consolidated open back inclinable 2½" stroke.
Punch and Angle Shear, Pels armor plate combination 220 volt, 3 phase, 60 cycle motor.
Shear, 124" Ohl under drive square 7/16" cap., 5 H. P. motor.
Welder, Gibbs circular and straight seam 40" depth throat, for 18 ga. used very little. Excellent condition.

MACHINE TOOLS

Automatic, Model C National-Acme screw machine, 9/16" 5-spindle, 7½ H. P. A. C. motor.
Automatic, Gridley screw machine, 1¼" 4-spindle belt drive.
Automatic, Gridley screw machines, 1¾" 4-spindle, 10 H. P., A. C. motors (2).
Automatic, Gridley screw mche., 2" 4-spdl. 10 H. P. A. C. mtr.
Automatic, Cleveland screw machines, ⅜-½" model A (2).
Bolt Cutters, Acme 3½" and 4" single
Drills, Allen high speed, ball bearing, 6-spindle, (2).
Grinder, Walker tool and universal unit drive, with equipt.
Grinder, Norton plain, 14"x72", belt drive.
Hammer, Swaine drop, No. 7 (500 lb.) with Peck lifter.
Miller, No. 1½B Milwaukee vertical, power feed rotary table, very fine condition.
Miller, No. 3H LeBlond plain, with heavy vert. attachment.
Millers, No. 2B Kearney & Trecker plain, double overarms, vertical attachment.
Miller, No. 6 Becker vertical with rotary table.
Millers, 24" Cincinnati automatic A. C. motors, (3).
Miller, No. 4—36" Cincinnati "Hydromatic" A. C. motor, used only 2 weeks.

Also Foster, Warner & Swasey hand screw machines, drills from 10" to 36" swing, lathes from 12" to 38" swing, keyseaters, punches and shears, and many others.

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A. D. White Machinery Co.

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3—Diamond Surface Nos. 2, 3.
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3—Besly No. 1, No. 2, No. 10.
4—Landis 16x48, 16x68, 16x72.
1—Sellers No. 1 Drill.
1—B. & Coleman No. 2 Hob.

TURRET LATHES AND SCREW MACHINES
9—W. & S. Nos. 2, 4, 6, 2-A, 3-A.
3—Libby 18", 26".
6—P. & W. ¾", 1", 1¼", 2", 3".
4—Acme 1", 1½", 2½", 3".
4—Gisholt 21", 24", 28", 34".

AUTOMATICS
6—B. & S. Nos. 00, 0, 2, 2-G.
9—Gridley ¾, ⅞, 1¼, 1½, 2½, 2-⅞
2—14" Fays.

LATHES
1—90" Putnam Wheel.
1—84x36 Putnam.
1—72x28 Putnam.
1—72x58 N-B-Pond.
1—59x28 N-B-Pond.
1—56x18 N-B-Pond.
1—50x36 Pittsburg.
1—48x24 N-B-Pond.
1—48" N-B-Pond Wheel.
1—42x39 Putnam.
1—42x28 N-B-Pond.
1—36x14 Bridgeford.
1—30x22' American.
1—30x12' American
2—24x12 Schumacher-Boye.
1—21x10 LeBlond.
1—18x10 Lodge-Shipley.
1—18x10 Hendey.
1—17x10 LeBlond.
1—16x8 Monarch.
1—16x6 American.
6—14x6' L. & S. Selective Head.
1—14x5 Monarch.

PLANERS
2—24x24x10 W-Blaisdell.
1—30x30x8 N-B-Pond.
1—30x30x12 Cincinnati.
1—36x24x12 D. & H. Openside.
1—36x36x8 Cleveland Openside.
1—36x36x10 N-B Pond.
1—36x36x14 N-B-Pond.
1—42x42x12 N-B-Pond.
1—42x42x22 Cincinnati.
1—60x60x18 Cincinnati.
1—96x48x12 D. & H. Openside.

DRILLS (Upright)
6—Aurora 22, 24, 28, 30".
12—H-Wright 1, 2, 3, 4, 5, 6 spindles.
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3—Minster No. 2-D.
4—Colburn Nos. 1-D, 2D, 4D.

DRILLS (Multiple Spindle)
3—Moline Nos. 11-D, 5-D, 2-D.
4—Baush Nos. 2, 3, 4.
6—Natco Nos. 12, 13, 14, 15, 37.

DRILLS (Radial)
1—3' American Plain.
1—4' Cincinnati-Bickford Plain.
1—6' Fosdick Plain.
1—6' Cinti.-Bick. Plain, mtr. on arm
1—7' Dreses Plain.
1—8' American Triple Purp. Plain.
1—6' American Universal.
1—5' Dreses Universal.

GEAR CUTTERS
4—B-Coleman Nos. 3, 12.
4—B. & Sharpe Nos. 13, 3, 5.
2—Newark No. 2-B.
3—G. & E. Nos. 18-H, 12-H.
9—Gleasons, 6, 11, 15, 18, 24, 36, 77".

MILLERS
9—Cincinnati Plain Nos. 2, 3, 4, 5.
1—Cincinnati Vert. Nos. 3, 4.
4—Cincinnati Universal No. 2, 3, 4.
5—Milwaukee Pl. No. 1, ½2-B, 3-B.
2—Milwaukee Vert. No. 2½.
7—Kempsmith Plain Nos. 2 3.
2—Kempsmith Univ. Nos. 2, 3.
5—LeBlond Univ. Nos. 2, 2½, 3, 4.
2—Knight No. 2, No. 3.
5—Becker No. SD, CS, 2, 5, 6,

BORING MILLS
1—16" N.-B.-Pond Extra Heavy.
1—12' Niles Vertical.
1—10-16" Niles Extension.
1—100" N-B-Pond Vertical.
1—96" Betts Vertical.
1—84" Betts Vert. Boring Mill.
1—72" N.-B.-P. Vertical.
1—72" Sellers Vertical.
1—72" King Vert. Boring Mill.
1—62" N-B-Pond Vertical.
1—52" Gisholt Vertical.
2—48" Colburn Vertical.
2—44" N.-B.-Pond Vertical.
1—24" Bullard Vertical.
1—54" Bar Niles Horizontal.
1—44" Bar N-B-Pond Horizontal.
1—72" N.-B.-P. Duplex Horiz.
1—No. 3 Barrett Cylinder.

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3—16″x10′ Lodge & Shipley.
1—16″x14′ Lodge & Shipley.
1—18″—26″x6′ South Bend.
1—18″x 8′ American.
2—18″x10′ Lodge & Shipley.
1—20″x 8′ Monarch Helical Gear.
2—20″x 8′ Lodge & Shipley.
1—20″x 8′ American.
2—20″x12′ Lodge & Shipley.
1—20″—40″x11′ Rahn Larmon.
1—22″x10′ Lodge & Shipley.
1—24″x 8′ Hendey.
2—24″x12′ Lodge & Shipley.
1—24″x14′ Lodge & Shipley.
2—24″x18′ Lodge & Shipley.
1—30″x24′ Lodge & Shipley.
1—36″x14′ Lodge & Shipley.
1—34″x24′ Lodge & Shipley

***RADIAL DRILLS**

1—3′ Western.
1—3′ Mueller.
1—5′ Carlton Motor on arm.
1—5′ American.
1—6′ Western Triple Geared.
1—6′ American Full Universal.

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1—24″ Bullard New Era.
1—36″ Bullard New Era.
All Other Makes up to 10′.

***HORIZ. BORING MACHINES**

2—No. 3-A—3″ Universal.
1—No. 350 Giddings & Lewis.
1—No. 5 Defiance.
1—8″ bar Niles-Bement-Pond.
1—No. 31 Lucas.

***SHAPERS**

2—24″ Gould & Eberhardt.
1—24″ Gould & Eberhardt Invinc.
1—28″ Columbia.

PLANERS

Belt and Reversing Motor Drive
All Sizes

***MILLING MACHINES**

***PLAIN**

2—No. 1-B Milwaukee.
2—No. 2-M Cincinnati.
1—No. 2-B Milwaukee, Mtr.-in-Base.
2—No. 2 Cincinnati High Power.
1—No. 3-B Milwaukee.
2—No. 3-B Heavy Brown & Sharpe.
1—No. 4-B Heavy Brown & Sharpe.
1—No. 4 Cincinnati, Rect. Overarm.
1—No. 5-B Heavy Brown & Sharpe.

***UNIVERSAL**

1—No. 2-M Cincinnati.
1—No. 2-B Milwaukee.
1—No. 3 Cincinnati High Power.
1—No. 4 Cincinnati High Power.

***VERTICAL**

1—No. 3 Cincinnati High Power Motor-in-Base.
1—No. 3 Cincinnati High Power.
1—No. 3-B Milwaukee.
1—No. 3 Brown & Sharpe.
4—No. 4 Cincinnati High Power.
1—No. 4 Cinti Intermittent Feeds.

***GEAR HOBBERS**

Single Pulley and Motor Drive

5—No. 12 Barber-Colman.
3—No. 36-H Gould & Eberhardt.

***TURRET LATHES**

2—No. 1-A, No. 2-A Warner & Swasey Timken Head.
1—No. 2-A W. & S. 3¼″ cap.
2—No. 4-A Warner & Swasey.
1—26″ Libby-International 7⅞″ hole.
2—No. 5-A Potter & Johnston.
5—No. 6-A Potter & Johnston.
4—14″ Fay Automatic.

PLAIN GRINDERS

All Makes and Sizes

UNIVERSAL GRINDERS

1—No. 13 Brown & Sharpe.
1—No. 1 Cincinnati.
1—No. 2 Bath Motor Drive.

PRESSES

3—No. 4, No. 5 Federal.
6—No. 2 V. & O., O. B. I.
6—No. 20 Bliss, O. B. I.
2—No. 203 Bliss, 12½″ bet. uprights.
1—No. 202-C Toledo, 32″ bet. upr.
1—No. 91-B Toledo, 32″ bet. upr.
1—No. 203-B Toledo, 32″ bet. upr.
1—No. 5-C Bliss, 54″ bet. uprights.
1—No. 307 Bliss, 28″ bet. uprights.
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*** These Machines all arranged for single pulley or motor drive**

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9'x18" Porter-Cable	190.
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16"x 6' Pratt & Whitney	75.
14"x 6' Flather	125.
15"x 6' Flathers	150.
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17"x 6' LeBlond, rap. prod.	400.
20"x 8' Hamilton	500.
20"x12' S. B. & E. taper att.	600.
26"x10' Whitcomb-Blaisdell	750.
25"x12' LeBlond 95% new	975.
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30" Streit Pulley	350.
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54"x23' Pond	950.
No. 2 Niles-Bement-P. Axle	375.

DRILLS

22" Barnes All-Geared, S. O ..$	375.
No. 25—24" Foote-Burt	600.
4-spindle Sigourney	125.
No.2—8-spindle Western mult. with 18"x18" head	325.
No. 3—12-spdl. Western mult. with 26" round head	250.
No. 26 A. C. Fox 36-spindle 16"x32" head	950.
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4' Bickford Semi-Univ. Rad.	250.
3' Mueller Radial, m. d.	750.
2½' Gang (Carlton)	450.

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Beaman & Smith Cylinder Boring & Milling Machine...$	500.
2-spdl., 6" bar Espen-Lucas Horizontal Boring Machine	600.
8" bar Ingersoll	450.

VERTICAL BORING MCHS.

30" Flather, 30" 3-jaw chuck	600.
34" Colburn	250.
48" Putnam Car Wheel Borer	500.
51" Baush, rapid traverse	1250.
60" Pittsburgh	500.
61" Baush	1500.
72" Pond	900.

SHAPERS AND PLANERS

32" Steptoe Shaper ...$	150.
36"x36"x16' Ohio	900.
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56"x42"x10' Cincinnati	1500.
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No. 5-B Becker, 42"x16"x26"	450.
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No. 2 Pratt & Whitney Lincoln	75.
No. 4 Hendey Lincoln	175.
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No. 1 Foster Thread Miller	150.
No. 3-E Lees-Brad.Thd. Mill.	350.

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18" Gleason Gear Generator...$	500.
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TURRET MACHINES

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No. 2—1" Millholland	250.
No. 3—1¼" Foster	200.
No. 4—1½" Millholland	350.
2"x24" Jones & Lamson	175.
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No. 6—2" Brown & Sharpe	400.
24" Steinle, 6½" hollow spdle.	900.
26" Libby	750.
24" Davis	150.
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6"x18" Landis Self-Contained.$	475.
12"x36" Fitchburg	350.
No. 10-A Bryant Internal	350.
No. 20 Bryant Deep Hole	400.
No. 23 Brown & Sharpe Gear Cutter Grinder	100.
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MISCELLANEOUS

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72" King, 2 Swiv. Hds., belt drive.
72" Niles, 2 Swiv. Hds., belt drive.
72" Sellers, 2 Swiv. Hds., m. d.
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52" Bullard, 2 Swiv. Hds., m. d.
50" Baush, 2 Swiv. Hds., m. d.
42" Bullard, 2 Swiv. Hds., cone. dr.
36"-44" Niles Turret & Side Head.
36" Bullard New Era, Lub. Syst.
34" Colburn Turret Hd., cone dr.
30" W. & Swasey Turret, cone dr.
24" Bullard New Era.

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6" Bar Bement M., Floor Type m.d.
5" Bar D. & H. Floor Type, m. d.
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6" Bar Lucas Knee Type, m. d.
4½" Bar Defiance, Knee Type, m. d.
4½" Bar Sellers Knee Type, m. d.
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3½" Bar Blomquist Eck. s. p. d.
3" Bar No. 31 Lucas, Table Type, s. p. d.
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30"x136" Farrell Roll.
20"x72" Landis Plain.
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14"x72" Norton Plain.
10"x36" Cincinnati Plain.
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No. 4 Landis Universal, 12"x66".
No. 50 Heald Cylinder.
No. 65 Heald Cylinder.
No. 60 Heald Cylinder.
36"x80" Reinecker Precision Surface.
30"x84" Springfield Planer Type.
No. 22 Pratt & W. 22" Vert. Surface.
No. 16 28" Blanchard Vert. Surf., b.d.
14" P. & W. B. B. Vertical Surface.
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No. 2 Diamond Surface, belt drive.
No. 25-A Heald Rotary Surf., m. d.
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No. 2 Reid Surface, belt drive.
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No. 72-A-3 Sizematic Hydraulic.
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No. 14 Gardiner Dbl. Ring Wheel, Ball Bearing, motor drive.
No. 15 30" Besly Dbl. Disk, b. d.
No. 24 Landis Crank Shaft. 63".
No. 7 Gardiner Double Disk.

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14-ton Chambersburg Stm. Forging.
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8000 lb. Chamber'g Guided Ram.
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2000 lb. Chamber'g Single Frame.
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No. 1-B, 2-B, 3, 3-B, 4-N, & 4-D Nazel.

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4000 ton Brewer Schumaker Hyd. Forging Press.
3000 ton Sid High Speed Steam Hdy.
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1000 ton Southwark Flang Press.
750 ton Southwark Hyd. Press.
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180 to 400 ton Wheel Presses.

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84"x40' Putnam Trip. Grd., m. d.
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52"x34' Pittsburgh Q. C. G., m. d., taper attachment.
48"x44' Bridgeford Boring, m. d.
42"x24' American Grd. Hd., m. d.
42"x24' Pond Lathe, m. d.
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18"x 8' L. & S. Q C G. Turret.
All sizes of Cone Driven Engine Lathes from 14" to 96".

MILLING MACHINES

No. 5 Cincinnati Plane Rect. Overarm, s. p. d.
No. 4 Kempsmith Maximill, m. d.
No. 4 Cincinnati Univ., cone drive.
No. 4 LeBlond Plain, cone drive.
No. 4 Hendey Univ., s. p. d.
No. 2M Cinti. Plain, motor in base.
No. 3 Kempsmith vert., mtr. in base.
No. 2 Cinti. Plain Q.C.G., cone dr.
No. 13-B B. & S. Mfg. s. p. d.
No. 33 B. & S. Mfg. s. p. d.
24" Cincinnati Duplex.
No. 2-M Potter & Johnson, s. p. d.
40" Ohio, Oesterlein Tilted Rotary.
Large stock of hand millers.

PLANERS

14'x10'x24' Pond 4 Hds., m. d.
8'x8'x24' Betts 4 Heads, m. d.
84"x84"x30' Sellers 4 Heads, belt.
84"x84"x18' D. & H. box table, m.d.
72"x72"x20' D. & H. 4 Heads, box table, motor drive.
48"x20' D. & H. Open Side.
48"x48"x16' D. & H. 4 Heads, box table, motor drive.
48"x48"x20' Cincinnati 4 Hds., m. d.
36"x36"x10' D. & H. Open Side.
30"x30"x8' Cincinnati 2 Heads. belt.

MISCELLANEOUS

Engraving Machines.
Die Sinking Machines.
8" cap. Gray Sheet Metal Cutter.
No. 4 Olsen-Carwin Dynamic Balancing Machine, Work:—860 lb. diam. 6' long.

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Good Machine To

MILLING MACHINES

No. 1 Cleveland Universal, single pulley drive	$ 700.
No. 2 Cincinnati Plain, cone drive	425.
No. 3 Brown & Sharpe Plain, cone drive	525.
No. 3A Brown & Sharpe Universal, single pulley drive	1000.
No. 3 Kempsmith Universal, cone drive	825.
No. 3 Cincinnati High Pwr. Vert., sgle. pul. dr., flanged spdl.	1000.
No. 4 Cincinnati Vertical, belted motor drive, flanged spindle	1500.
No. 4 Cincinnati High Pwr. Plain, sgl. pul. dr., flanged spdl.	1575.
No. 5 Cincinnati High Power Plain arranged for motor drive; late type with flanged spindle, power rapid traverse, and the rectangular overarm	2500.

DRILLS

4' Dreses Universal Radial Drill, single pulley gear box drive	725.
5' American Triple Grd. Pl. Radial Drill, s. p. gear box drive	1225.
6' American Triple Grd. Pl. Radial Drill, s. p. gear box drive	1425.
6' American Triple Purpose Plain Radial Drill, s. p. gear box drive—fully inclosed head	2175.
36" Aurora Upright Drill Press, belt drive, back gear, power feed, sliding head	275.
26" W. F. & John Barnes Upright Drill Press, belt drive, back geared, power feed, sliding head	200.
21" Fosdick Upright Drill Press, arranged for motor drive thru gear box, bk. geared, power fd., sliding hd., tapping att.	175.
No. 2 Cleveland Single Spindle Ball Bearing Drill, belt drive, No. 2 M. T. hole in spindle	125.
Allen 2-spdl. B. B. Drill, belt drive, No. 2 M. T. hole in spdls.	200.

SHAPERS AND PLANERS

16" Gould & Eberhardt High Duty Back Grd. Crank Shaper, 4-step cone drive, late type	375.
20" Gould & Eberhardt High Duty Back Grd. Crank Shaper, 4-step cone drive, late type	475.
20" Cincinnati H. D. B. G. Crank Shaper, cone drive	425.
26" Kelley H. D. B. G. Crank Shaper, cone drive	500.
24" Cincinnati Crk. Planer, equipped with 1 hd. on cross rail	450.
33x33x8' Ohio Planer, belt drive equipped with 2 hds. on rail	725.
36"x36"x10' Cincinnati Tu-Speed Planer, arranged for motor drive, equipped with 2 heads	1175.
48x48"x20' Cincinnati Tu-Speed Planer, arranged for motor drive, equipped with 4 heads. Late type with box table	2500.

LATHES

36"x20' American High Duty Geared Head Q. C. Lathe, A. C. motor drive, complete motor—late type	2650.
36"x18' Lodge & Shipley Q. C. Lathe, cone drive	1425.
27"x16' American High Duty Geared Q. C. Lathe, arranged for constant speed motor drive—late type	1875.
26"x24' Niles Tool Works Standard Change Lathe, cone dr.	525.
20"x8' Hendey Geared Head Q. C. Lathe, arranged for constant speed motor drive—also has taper attachment	975.

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LATHES—Continued.

18"x10' Schumacher-Boye Q. C. Lathe, cone drive, also has taper attachment	$ 375.
16"x8' Lodge & Shipley Q. G. Lathe, cone drive	425.
12"x5' Hendey Yoke Head Q. C. Lathe, cone drive, late type	325.
No. 3A Warner & Swasey Universal Hollow Hexagon Turret Lathe, single pulley drive, arranged for chucking work	1275.
No. 4 Warner & Swasey Universal Turret Lathe, with automatic chuck and bar feed	975.

MISCELLANEOUS

1" Landis Single Spindle Bolt Threading Machine, belt drive, with lead screw attachment	375.
24" Bullard New Era Type Vertical Turret Lathe, arranged for motor drive, late type	1950.
36—44" Niles-Bement-Pond Side Head Vertical Boring Mill, A. C. Motor Drive, complete with motor—chuck table—late type	2350.
18"x12"x12" Worthington Steam Driven Air Compressor, 100 lb. steam pressure, 100 lb. air pressure, displacement 700 cubic ft., double cylinder, double stage	800.
18x11x14" Worthington Feather Valve Type Air Compressor, motor drive, with 150 H. P. A. C. Motor; displacement 1,000 cu. ft., late type	2600.
No. 200—8" Heald Rotary Surface Grinder, belt drive, with 8" chuck	150.
No. 22—12" Heald Rotary Surface Surface Grinder, belt drive, with 12" magnetic chuck	800.
No. 2 J. N. LaPointe Single Broaching Machine, belt drive	200.
Gleason Bevel Gear Tester, belt drive	125.
No. 1 Cross Gear Tooth Rounder, belt drive, equipped with collet attachment	200.
No. 3 Barber-Colman Gear Hobber, belt drive	475.
16" Cincinnati Automatic Gear Hobber, belt drive	675.
No. 18 HW Gould & Eberhardt High Duty Gear Hobber, single pulley drive, complete equipment	975.
No. 60 Heald Cylinder Grinder, belt drive	350.
No. 1 Cleveland Horizontal Boring Mill, single pulley drive, with 2½" bar	675.
No. 2 Brown & Sharpe Automatic Surface Grinder, belt dr.	300.
60 lb. Bradley Rubber Cushioned Helve Hammer, belt drive	300.
No. 5A High Speed Riveting Hammer, belt drive	275.
No. 16A Badger State Single End Punch and Shear, belt drive, has 8" throat	250.
15" Niles-Bement-Pond Slotter, 4 step cone pulley drive, equipped with 30" diameter rotary table	550.

ALL MACHINES IN GOOD CONDITION—FURNISHED COMPLETE AND SOLD WITH MONEY BACK GUARANTEE

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1—Practically New 42" Widened to 54"x42" High x16' Table G. A. Gray Company's Maxi Service Planer with two heads on cross rail, with side heads on front and rear housing, with table widened to 50", direct connected motor drive with 25 HP, 230 volt, direct current reversing motor with General Electric rheostat controller complete with 3 HP Louis-Allis 440 volt, 3 phase, 60 cycle motor for rapid traverse, elevating rail, etc. complete with 21 KW General Electric D. C. generator—Type CD-25, 250 volt, 1750 RPM direct connected to a General Electric 30 HP, A. C. motor wound for 440 volt, 3 phase, 60 cycle. This machine has not had six months' actual use.

14"x6' American Compound Rest, All Geared Head, Quick Change Gear, Engine Lathe, complete, belt driven.

16"x12' Prentice Compound Rest and Taper Attachment, Quick Change Gr., All Grd. Hd., Belt Driven Lathe, complete with regular equipment.

20"x10' Prentice Compound Rest, Quick Change Gear, All Geared Hd., Single Pulley Drive, Belt Driven Engine Lathe.

No. 2-A Milwaukee Plain Constant Speed Drive Milling Mche., belt dr.

No. 4-B Heavy Brown & Sharpe Plain Constant Speed Drive Milling Machine, taper nose spindle, rapid traverse, belt drive.

No. 5-B Heavy Brown & Sharpe Plain Constant Speed Drive Milling Machine, taper nose spindle, rapid traverse, belt drive.

3' Arm American Enclosed Head Plain Arm Radial Drill with tapping attachment, gear box belt drive, with plain box table.

4' Arm Cincinnati-Bickford Single Pulley Drive Gear Box Plain Arm Radial Drill with tapping attachment, belt driven, with plain box table.

This covers but a small part of our stock of used tools. Please

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Attractively Priced

4' Arm Hammond High Speed Sensitive Radial Drill with tapping attachment, motor driven, complete with motor and with universal table.

4' Mueller Plain Arm Radial Drill with tapping attachment, gear box single pulley belt drive.

5' American Triple Geared Plain Arm Radial Drill with tapping attachment, gear box motor drive, complete with motor and plain box table.

6' Mueller Plain Arm Radial Drill with tapping attachment, gear box single pulley belt drive, with box table.

24" Gould & Eberhardt Back Geared Crank Shaper, single pulley belt drive, complete.

30"x30"x12' Gray Spur Geared Planer, two rail heads, motor driven, complete with D. C. variable speed motor.

36"x36"x12' Niles Spur Geared Planer, two rail heads, reversing motor drive—direct connected with D. C. variable speed motor and control.

18" Libby Type "A" Heavy Duty Turret Lathe, motor drive (3).

26" Libby Type "A" Heavy Duty Turret Lathe, motor drive (2).

No. 3-A Warner & Swasey Late Type Steel Covered Ways Hollow Hexagon Turret Lathe with complete chucking equipment, pump, arranged for motor drive, complete with A. C. motor.

60" Colburn Vertical Boring and Turning Mill with two swivel heads, chuck jaws, belt driven.

52" Bullard Vertical Boring and Turning Mill with two swivel heads, with chuck jaws, arranged for motor drive.

No. 32 Lucas Horizontal Precision Boring, Drilling and Milling Machine, 3¾" spindle, with bars, belt driven

No. 0 Giddings & Lewis Horizontal Precision Boring, Drilling and Milling Machine, belt driven, with boring bars.

No. 12 Barber-Colman Motor Driven Hobbing Mch. complete with mtr.

No. 11 Brown & Sharpe Plain Cylindrical Grinder, (2).

All of these Machines that are belt driven can readily be converted to motor drive machines.

end us a list of your requirements or write for our complete list.

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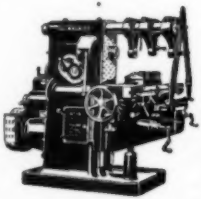

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Index of Advertisers

A

Acme Industrial Co. 56
American Hollow Boring Co..... 55
American Oil Pump & Tank Co. 119
American Tool Works, Inc..... 54
Ames Co., B. C..... 59
Anderson Bros. Mfg. Co..... 45
Armstrong Bros. Tool Co. 43
Armstrong-Blum Mfg. Co..... 21
Atlas Press Co..... 36
Automatic Machine & Engineering Co..... 111
Avey Drilling Machine Company 7

B

Baumbach Mfg. Co., E. A..... 66
Bay State Tool & Machine Co... 29
Bellefleur & Son Co , A. C..... 51
Bennett Machinery Co. 111
Bernstein & Co., Geo. M..... 95
Bleser Mfg. Co., J..... 81
Boston Gear Works Sales Co..... 46
Box Crane & Hoist Corp. 33
Brandes Machinery Co. 88
Brandt Machinery Co..... 94
Broadway Machinery Co., Inc. .. 112
Brotherhood & Son, Percy M. 81
Brown Machinery Co..... 92
Brownell Machinery Co. 89
Browning & Co., Inc., Victor R. 32
Burke Machine Tool Co. 36

C

Canton Foundry & Mchc. Co.... 32
Chicago Gear Works..... 47
Cincinnati Abrasive Wheel Co.... 48
Cincinnati Electrical Tool Co.... ..... Inside Front Cover
Cincinnati Mchy. & Supply Co... 107
Clements Manufacturing Co..... 42
Cleveland Twist Drill Co. 61
Colonial Broach Co..... 49
Conway Clutch Co. 9
Crawford & Co., Inc., F. H..... 115
Crofoot Gear Corp., C. E. 49
Cullman Wheel Co. 64

D

Davis Keyseater Co..... 35
Davis Machinery Exchange..... 91
Dayton-Rogers Mfg. Co..... 55
Defiance Machine Works..... 2
Detroit Stamping Co..... 69
Donahue Steel Products Co..... 106

E

Eastern Machinery Co.....102-103
Edgemont Machine Co..... 41
Elco Tool & Screw Corporation... 24
Esley Machinery Co., E. L. 92
Ettco Tool Co., Inc. 69
Excelsior Tool & Machine Co.... 19

F

First United Finance Corp..... 122
Foote-Burt Co..... 5
Foote Gear Works, Inc..... 46
Foster Machinery Co..... 94

G

General Machinery Corp. 90
Glenzer Co., J. C..... 46
Grant Mfg. & Machine Co..... 38
Greenerd Arbor Presses..... 37

H

Hagen, H. J..... 67
Hammond Machinery Builders, Inc. 13
Hardinge Brothers, Inc..... 65
Hartford Special Machinery Co... 59
Hendley & Whittemore Co..... 11
Heuser Mfg. Co.....
Hill, Clarke & Co., of Chicago....98-99
Hunt & Son, C. B.....Front Cover
Hyman & Sons, Joseph..... 112

I

Illinois Testing Laboratories, Inc. 50
Indianapolis Machinery & Supply Co..... 109
Interstate Machinery Co..... 82
Iroquois Machinery Co..... 114

J

J. & H. Electric Co., Inc.....
Jarecki Machine & Tool Co..... 26
Jarvis, Inc., Benj. E..... 39
Johnson & Sons Mchy. Co., Wm. C. 87
Jones Machinery Co. 110
Jones Machine Tool Co. 88

Index of Advertisers—Continued

K

Kearney & Trecker Corp. 108
Keller Mechanical Engineering Corporation 12
Kinney Co., E. A. 108
Klauber Machinery Co., E. L. 93
Knoedler Machinery Exchange 81
Koro Corporation 44

L

LeBlond Mche. Tool Co., R. K., ... 62-63
Leland-Gifford Co. 4
Lenney Mche. & Mfg. Co., Inc. 8
Lewthwaite Machine Co., T. H. 51

M

McDonald Machinery Company.. 84
McKinney Tool & Mfg. Co. 6
Machineshop Equipment Co. 95
Machine Tools Sales Co. 100-101
Mall Tool Co. 53
Marr-Galbreath Machinery Co. .. 85
Martin Tool & Die Works, J. E. 66
Massachusetts Gear & Tool Co. .. 47
Midwest Equipment Co. 88
Mid-West Machine Tool & Supply Co. 88
Miles Machinery Co. 91
Molitor Machinery Co., Chas. 90
Monarch Machine Tool Co. 3
Morey and Co. Inc. 115
Morris Machinery Co., Inc. 110

N

Nelson Machinery Co. 90
Norgren, Co. Carl A. 22
Norton-Broadway Mchy. Co. 86

O

O'Brien Machinery Co. 92
Osborne & Sexton Mchy. Co. 113

P

Palmer-Edwards Co. 116
Partridge, Arthur S. 81
Pedrick Tool & Machine Co. 60
Peerless Machine Co. 38
Plunket Machine Co., J. E. 67
Porter Machine Co., J. E. 39
Precision Gauge & Tool Co. 30
Procunier Safety Chuck Co. 41

R

Randle Machinery Co. 86
Reeve-Fritts Company 90
Reliance Mchy. Sales Co. 93
Reynolds Machine Company 25
Riverside Machinery Depot 114
Rochester Tool & Gauge Corp. 45
Russell Machine Co. 119
Ruthman Machinery Co. 42

S

Saltzman, B. L. 87
Schellenbach-Hunt Tool Co. 80
Schwerdtle Stamp Co. 50
Scott-Bansbach Mchy. Co. 82
Severin Machinery Corporation ... 92
Siewek Tool Company 43
Simmons Machine Tool Corp. 97
Smith & Mills Co. 34
Stackbin Corporation 23
Standard Electrical Too lCo. 10
Standard Shop Equip. Co., Inc. ..
Stevens Inc., John B. 31
Stoehr Machinery Co., A. M. 90
Stoody Company 17
Strafer Machinery Co. 89
Strand & Co., N. A. 53
Strong, Carlisle & Hammond Co. 104-105
Sun Machinery Co. 113

Index of Advertisers—Continued

Sundstrand Machine Tool Co.... Back Cover
Superior Machine & Eng. Co. ... 16
Surplus Material & Mchy. Co.... 90

T

Taylor-Hall Welding Corporation 93
Taylor & Fenn Co. 14
Thompson Grinder Co. 34
Townsend Mfg. Co., H. P. 37

U

United Machinery & Supply Co. 81
U. S. Electrical Tool Co. 15
Used and Rebuilt Machinery 81 to 119

V

Victor Machinery Exchange, Inc. 116

W

Wachs-Gregg & Co. 84
Wade Tool Co. 35
Walls Sales Corporation 44
Walton Co. 56
Wardwell Manufacturing Co. 20
Wells Manufacturing Corporation 18
Wertman Machinery Co., M. A. 88
West Penn Machinery Co. 83
Western Tool & Mfg. Co. 48
White Machinery Co., A. D. ... 96
Whitney Metal Tool Co. 124
Wigglesworth Machinery Co. 94
Wilder Tool Co. 54
Wilson, K. R. 27
Wittek Manufacturing Co. ..... Inside Back Cover

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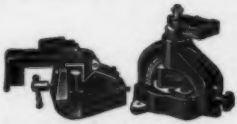

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